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Approximately 75 specialists from government, universities, foundations, international organizations, trade unions, cooperatives, and business organizations participated in a 3-day symposium to contribute to efforts of the United States Government and international organizations to decrease the gap between world food production and population growth by providing for an exchange of ideas on ways of using manpower planning, development, and utilization techniques in dealing with the problem. Informal talks, panel discussions, case history presentations, and audience participation are reported for (1) Introduction, (2) The Food/Population Dilemna: A General Exposition, (3) Cast History: Comilla Project, (4) Training Food Producers, (5) Problems of Manpower Incentive, Motivation, and Communication, (6) Case History: Mass Fertilizer Demonstration Project in El Salvador, (7) The World Food Situation: Past Trends and Future Implications, (8) Training Middle-Level and Upper-Level Manpower, (9) Incomes, Productivity, and the War on Hunger, (10) Case History: Helmand Valley Project, (11) Unemployment, Underemployment, and the War on Hunger, (12) Human Resources, Food Production, and the Private Sector, and (13) Manpower Planning and the Role of Institutions in the War on Hunger. (JM)

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U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION
International Manpower Institute

SYMPOSIUM on MANPOWER and the WAR on HUNGER

MAY 3-5, 1967 WASHINGTON, D.C.

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Conducted by: THE INTERNATIONAL MANPOWER INSTITUTE

Under sponsorship of: AGENCY FOR INTERNATIONAL DEVELOPMENT and U.S. DEPARTMENT OF LABOR

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SYMPOSIUM ON MANPOWER AND THE WAR ON HUNGER

May 3-5, 1967

Washington, D. C.

Conducted by:

THE INTERNATIONAL MANPOWER INSTITUTE

Under sponsorship of
Agency for International Development
U. S. Department of Labor

FOREWORD

The International Manpower Institute conducted a Symposium on Manpower and the War on Hunger, May 3-5, 1967, sponsored by the Agency for International Development and the Department of Labor.

The purpose of the Symposium was to contribute to the major efforts being mounted by the United States Government and international organizations to decrease the gap between world food production and population growth. It was designed to be responsive to the President's policy directives regarding the War on Hunger.

The Symposium provided an opportunity for scholars and administrators to exchange ideas regarding the ways in which the techniques of manpower planning, development, and utilization can be useful in increasing world food production and in dealing with other aspects of the War on Hunger. Because of the exploratory nature of the subject, the Symposium was characterized by informal talks, panel discussions, case history presentations, and maximum audience participation. No formal papers were presented.

Some 75 people participated in the Symposium, including specialists from Government, universities, foundations, international organizations, trade unions, cooperatives, and business organizations. For the Federal Government, in addition to the two sponsoring agencies, special support and participation were provided by the Department of Agriculture and the Department of Health, Education and Welfare. A list of the members of the planning committee and staff for the Symposium, and of the participants, is provided in the Appendix.

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Wednesday, May 3, 1967

INTRODUCTION

JOHN P. WALSH: Good morning, ladies and gentlemen. Let me welcome you to the Symposium on Manpower and the War on Hunger on behalf of the Manpower Administration and the International Manpower Institute, which is hosting the activity.

I would like to extend to you the greetings from my boss, Assistant Secretary for Manpower Stanley Ruttenberg, and to extend also the best wishes of the International Manpower Institute for a fine and worthwhile activity. As you all know, this is a joint venture sponsored by the Agency for International Development and the Department of Labor and hosted by the International Manpower Institute.

We have some definite purposes in mind and I am sure that as the program evolves over the next few days, you will find that your participation will be stimulated and each one of you will have an opportunity to express points of view.

The Symposium has been structured for several reasons. First of all, it is responsive to the President's policy directives regarding the War on Hunger and it is aimed, I would think, at decreasing the gap we know exists between food production in the world and population growth. It is actually directed toward an appraisal of the manpower aspects of this food-population dilemma.

Our organization here is such that it will bring together scholars from the universities and the academic field and the administrators of the programs in the Federal Government. I am sure that as the program evolves, we may have some difficulty telling which is which. I hope it will be that way because we all have an equal and consuming interest in the problem and it is our hope that we can exchange ideas which are relative to the ways in which the techniques of manpower planning, manpower development, and manpower utilization can be applied in increasing food production and distribution to attack this problem.

In order to bring you greetings and welcome from the Department of Labor, I would like to present to you at this time the Deputy Assistant Secretary for International Affairs and also the Administrator of our Bureau of International Labor Affairs, Harry Weiss.

HARRY WEISS:

I suppose each of us has notions of what are the major failures of economic development in the developing countries and our scapegoats for those failures. High up in my list of failures in our program of economic development are two major problems. One is our neglect of agriculture and, two, our serious neglect of population problems. I do not know what this is due to. I suspect that it is the ardent desire of the developing countries to industrialize, to balance a weak economic structure, that has been part of the cause for this neglect of agriculture and the need for growing food. I also suspect that part of the blame rests on us because perhaps we have made the easy assumption that food is no problem. Certainly we in the United States have solved the food problem and have been plagued with surpluses for decades, but whatever the reasons, it seems to me that we have badly neglected the need for helping the developing countries meet their food problem.

The other side of the coin, of course, is the population that eats the food.

We have been in the process of correcting these mistakes and, in his foreign aid message of February 7, the President formally signaled a change in emphasis and put the War on Hunger as a top priority and a part of this is a war on population growth.

However, our seminar, that we are scheduling in cooperation with AID, is concentrating on the problem of growing food and meeting the food problems of developing countries and not on the population problem except as it may develop, incidental to the main theme.

Now we in the Department of Labor, although we do not have any primary responsibilities in growing food or solving food or population problems, have a deep interest in strong, working nations. So we in cooperation with AID decided, when the President asked everybody to get behind the War on Hunger, to see what kind of a contribution we could make, and we developed the idea of this Symposium to bring together knowledgeable people to appraise the manpower aspects of the War on Hunger. Perhaps there are no manpower aspects to it. Perhaps manpower is not the limiting factor. Perhaps it is merely a question of getting fertilizer, land reform, or possibly there are other aspects. But our assumption is that there are some serious manpower factors which inhibit the solution of the food problem and we hope through this Symposium to isolate those factors and to develop some ideas of how we might solve the human problems so that manpower does not become a negative factor but becomes a positive factor for solving the War on Hunger.

The fact that we do not have population on the agenda today does not mean it is not an important problem. I happen to be a member of the Interagency Committee set up recently to deal with the population problem; certainly, I am overwhelmingly impressed by how serious it is. So I would pose the problem before this Symposium as being one of determining whether and to what extent manpower is a limiting factor in resolving the food problem, and how we can change it from a limiting factor--if it is that--to a positive factor for success.

Now, in planning this seminar, I want to express our appreciation for the help we have received from other agencies of the government. Obviously, we in the Department of Labor do not have the expertise to deal with food production or even all aspects of human resource problems, and so we have had the benefit of the assistance from the Departments of Agriculture, Health, Education and Welfare, Interior, and the Peace Corps in planning this conference. We express our appreciation to these agencies for this cooperation.

Now we hope to get contributions here at this seminar, not only from these representatives of government agencies, but also from the people in private life who have been invited to participate. These include people from the university world who have been dealing with this problem, people from private business, trade unions, and also foundations, and our sole aim in sponsoring this seminar in cooperation with AID is to see if we can make a contribution to the President's War on Hunger. If we succeed in exchanging ideas, in giving some recognition to the problem, and perhaps passing some possible solutions, I think the conference will be considered a success.

Thank you very much.

MR. WALSH: Thank you, Harry. Now, to turn to the other part of the team that is sponsoring this activity, it is my pleasure to present to you Burnie Merson of the Office of Labor Affairs of AID and Department of State.

BURNIE MERSON: On behalf of the Office of Labor Affairs and the AID, I extend greetings to all of you. Thanks for coming.

Phil Delaney, the Office Director, is somewhere between Vietnam and Washington; otherwise, he certainly would have been here. I will add my few words to those of Harry and Jack that this is a cooperative affair, a venture between the AID and the Department of Labor, utilizing the facilities and staff of the International Manpower Institute, which primarily is established to conduct Manpower Seminars for foreign participants. In view of the fact that the President has given such a high priority to the War on Hunger, the waste between population growth and food production, we thought it would be an excellent idea, a major contribution, if we examined the relationship between manpower and this particular battle.

Last year we had a symposium on forecasting manpower requirements. The major contribution that was made, the major advantage of that symposium, was in the proceedings. I think we have almost run out now of our supply of the first printing and I think after this symposium is concluded, we will find that the major contribution will come after the proceedings are printed and we receive worldwide distribution through AID and other sources. Then there will be a flood of telegrams and airgrams and letter requests for additional copies and they will end up in the libraries overseas and they will end up with people referring to them in speeches and so on.

You know, I was in an office the other day and the fellow said, "Why are you holding this symposium on the War on Hunger? Don't you know what a symposium is?" And I looked in Webster's New Collegiate Dictionary. It says it is a drinking party, especially following a banquet. And then I read a little further and it says it is a social gathering in which there is a free interchange of ideas, so I will reiterate what Harry is saying. Let us try to be trainers and exchange ideas because each person who has been invited on the panel up here, or in the audience, is an active member of this symposium and we certainly hope whatever you all have to say will be said so that the proceedings will reflect your point of view.

Harry mentioned that a variety of organizations are participating in this symposium. So that brings to mind that this manpower business is sort of a multi-sector, interdisciplinary approach as reflected by the fact that here you have the Peace Corps and Department of Interior, the Department of State, AID, the Office of Education, the Public Health Service and the United States Employment Service, the Bureau of Labor Statistics, and all will be involved in discussing, from various points of view, the relationship of manpower to this War on Hunger.

I looked over the agenda and I was struck by the fact that it has topics on high-level manpower, low-level manpower, middle-level manpower, and mobilizing the underemployed for productive work. You will also be discussing production on the farm and in the fisheries, as well as the supporting industries, the fertilizer and seed and credit and the output supporting industries, transportation, storage, and food processing, so it is a pretty complex subject. Manpower seems to permeate throughout this multi-sectorial, interdisciplinary approach.

In some ways it is sort of simple. I was at a little symposium of the Society for International Development Saturday and an economist, Hans Singer, from the United Nations, brought out the story that when the U-boat menace was pretty serious in World War II, someone suggested to Churchill if he would just bring the ocean to a boil, then the U-boats would come to the surface and you could get rid of those submarines. And Churchill answered, "Yes, but how do you do it?"

"Well," the man said, "that's the general idea, now it's for others to work out the details."

Well, the general idea, I suppose, of this Manpower and the War on Hunger Symposium is what we consider to be an active manpower policy--a policy which leads to the development of the skills, abilities, and knowledge of the work force, and to the development of jobs, not only to staff the industries and to support agriculture, but to absorb those who may be technologically displaced in rural hinter structure; one which facilitates the process of bringing jobs and workers together, the channeling of scarce manpower to activities in agriculture, the improvement of the productivity and welfare of the farm workers and the entrepreneur, and the development of institutions of the planning and operations through which the ideas and policies are translated into action.

Well, as Hans Singer said, that is the general idea, and I am going to spend the next three days listening to you all bring up the details of how to do it, and I will be taking notes.

Thanks very much again for coming here, and I want to pull out my pencil now and listen to the first presentations.

MR. WALSH: Thank you, Burnie, for those words. I am glad that you described what the Symposium is and how it operates. I assume from your remarks that this is going to be a modified Symposium; not only are people going to make presentations but we are going to get you all into the act. Whether there will be a drinking part or not, I am not so sure.

Now, the Symposium is being conducted by the International Manpower Institute. I think it is only fitting and proper that we give the Director of the Institute an opportunity to say a few words.

I have the direct pleasure of working with this gentleman since the Institute falls under my wing, and we have been intrigued with what has been happening here over the years. Many of you in this room have participated in one way or another in some of the activities, but for the information of all, let me tell you that the International Manpower Institute, while sponsored by the Department of Labor, is very closely coupled with AID. In fact, we turn there for the funds that are necessary to operate the various seminars that are carried on. It is an ongoing interagency activity of which we are very proud.

While you are here in these facilities, we hope you will have an opportunity to look at what goes on and get an opportunity to look at some of the reports that have been prepared as a result of the various seminars. We hope you may be stimulated by what you see and seek some form of active participation in future programs.

For your information, we operate two back-to-back seminars during the summer, each one some twelve weeks in length, bringing in people who are in the manpower sphere in developing nations for a real "gung-ho" work-type session to develop their skills and abilities to cope with the manpower problems in their nations.

Now having said that, let me introduce to you the Director of our International Manpower Institute, Mr. Edgar McVoy, of whom we are all very proud.

EDGAR C. McVOY: Good morning. I want to welcome all of you to this Institute, which is a rather young organization. Seminars have been conducted for six or seven years. We were set up formally as an Institute two years ago, and I have been the Director for one year. As Burnie Merson mentioned, we have started a precedent of having, in addition to the International Seminars, one developmental project which last year and this year has taken the form of a symposium. Last year was the symposium on the techniques of manpower forecasting. That was a subject on which we knew pretty well what people were going to say. We had papers distributed beforehand and it was a technical sort of thing. This one is of quite different nature, as you can imagine. We are not having any contributed papers. Each person on the program will speak informally, and we call this an exploratory sort of meeting. The proceedings are not going to tell us how to do it. They are going to tell us, I hope, what the problems are and some possibly effective approaches toward solving them.

In addition to the President's interest in this subject, I think it makes a lot of sense for us to try to approach this hunger problem from a manpower point of view. In my work overseas I have been impressed with the gap, the communications gap, among several types of experts. This includes those in the developing countries and some of the foreign advisers.

I will give you an example from Turkey. I was manpower adviser there in the State Planning Organization from 1962 to 1964.

Turkey had quite an ambitious agricultural plan for five years, 1963-67. They were going to transform agriculture, and the main shift was to be away from food grains toward dairy and vegetable and fruit production.

Well, this was the plan, mostly done by economists. There were some specialists involved, but, by and large, there just was not enough communication or understanding among the various people doing these plans. Although there have been some favorable results, they have not made very much headway in transforming Turkey's agriculture in the past few years. I think it is partly because they underestimated the great human factor. Even if all the other conditions were favorable, how do you get 10 million independent farmers to change the habits of 2,000 years? And how do they get their training in these new types of agriculture?

I think that our foreign advisers in some cases have helped to bridge these gaps, but sometimes they may even have helped to widen them. In the usual AID mission that I have either worked on or observed in several countries, while there were staff meetings, I do not believe there were many instances where the agriculture division and the labor division and the education division really understood what the other was up to and made serious efforts to coordinate the work and make the best out of what each could contribute.

So this symposium is an effort to get people from these different disciplines talking to see if there are factors in this picture which we can identify and which have not received the attention they should.

In the United States, we have done an impressive job in food production, distribution, and processing. But we cannot simply transplant this to the developing countries. They have their own culture, their own patterns. But perhaps some of us are beginning to understand the means by which we can advise and assist people in developing countries in the use of the assets of their own culture and the use of their great human resources to help lick these problems.

Time is getting short. For this discussion we are thinking in terms of five years, 10 years, 15 years. The population problem will not be solved for a lot longer than that, maybe two generations. The food problem, we think, ought to be amenable to some kind of progress within a much shorter time.

Our people, our specialists here, have shown a great deal of imagination in solving some of our problems. Let me give you an example or two. I do not want to go over the whole history of our agricultural education and extension service; you are familiar with that. But when we came up against the emergency situation of the depression, we found that agriculture was in bad shape. Farmers were becoming bankrupt and poverty stricken, so we set up the Farm Security Administration. With all its faults, I think it was one of the most imaginative and effective programs we ever had here. And some of the down and out farmers are now prosperous and their sons are going to college.

During war time we needed to gear up industry in a hurry. We developed special training programs. The TWI job instruction training for supervisors, the short courses for training welders, the splitting of occupations down by the dilution of skills--we used a lot of imagination for these programs. We need to bring some of this imagination to bear on the problems of food production, processing, distribution and consumption in the developing countries.

And now we have the poverty programs. Within the Manpower Administration there is a good deal of research being done and sponsored. New techniques of training and ways to bring disadvantaged people up to a level where they can absorb technical training are being investigated; also, ways in which they can be motivated so that they want to have a job and do well in it. Some of these approaches, I think, may be applicable, with some adaptation, to developing countries.

Just a couple of illustrations and then I will have finished. I will talk about rice and corn. I think these are two crops that may be crucial in the situation. It is really tragic to see Asian countries which used to be rice exporters now importing rice.

When I was in Indonesia in 1953-1954, there was great hope for increasing rice production. They had demonstration projects in West Java where, with the application of fertilizer, improved seed and cultivation, they were showing increases of 25 to 50 percent in one year on demonstration farms. Why did this not spread? If they had been able to spread that increase throughout the rice-bearing areas of Indonesia, they would still be exporting rice even with their big population.

The Philippines has become a rice-deficit country. In the last issue of *Front Lines,* the AID publication, there is a story about a mail-order packet of improved rice seed which some say is going to solve the problem. Maybe it will, but is that enough? If so, then we might as well adjourn this conference and just send out all these mail-order packets.

Why has Thailand increased its corn production so much in the last few years? Now I understand there is a new corn program, supported by AID and operated by private industry, which is going to help increase corn production even more. Why cannot other countries do the same?

The purpose of this conference is to try and explore some of these things, figure out why we have the problems, and maybe we can find solutions.

MR. WALSH: We thank you, Ed. I think that was a very good underscoring of why we are here and very well put.

I would like to present to you one other individual. Any activity that is going to work into a meaningful program requires somebody to "honcho" it all the way. And so we have a person that we have identified as Executive Secretary for this Symposium. It is a pleasure for me now to present to you Glenn Halm, who will tell you a little bit about how we are going to spin out this web.

GLENN E. HALM: Thank you, Mr. Walsh. I want to add my welcome to those that have already been expressed and talk a little bit about the format of the Symposium.

As others have indicated, we hope it will be a rather informal Symposium, and we hope that we will maximize the participation of you people in the audience. We are doing this by arranging approximately one-third of each session for open discussion and questions from the audience, so we hope that you will participate actively in this part of the Symposium. We want to pick your brains and hear your ideas and your comments.

Outside the door, immediately behind the registration desk, there are some materials that have been accumulated by the Farm Labor Service, Bureau of Employment Security, Department of Labor, and by the United States Department of Agriculture, for distribution to participants and guests in this Symposium. Feel free to pick up a packet as you leave.

In conclusion I would like to thank my counterparts in the other departments that have cooperated with us: Bud Nelson from AID, W.E.Harvey from the Department of Agriculture, and Alma Hughes from the Department of Health, Education and Welfare.

Wednesday, May 3, 1967

THE FOOD/POPULATION DILEMMA: A GENERAL EXPOSITION

ARNOLD. L. ZEMPEL: I think we might as well begin. Mr. Delaney, who was to be Chairman this morning, is on a trip to Vietnam and I am substituting for him. I am Arnold Zempel from the Office of Labor Affairs, AID.

This morning we will have an opening speaker and three discussants. I will introduce the discussants when each is called on to speak.

We are fortunate to have with us as opening speaker Mr. Herbert J. Waters who is Assistant Administrator for the War on Hunger, AID. By various means he is to consolidate all of the activities related to hunger, population problems, nutrition, health, education, and so on. He formerly headed the Office of Material Resources which has been abolished in the process of reorganization.

Mr. Waters is a Californian. He was a newspaperman in Santa Rosa where he rose from a cub reporter to editor-in-chief of the Press-Democrat. He came to Washington as Assistant to Secretary of Agriculture Charles Brannan, and worked primarily in matters connected with the Food and Agricultural Organization, in the United Nations. He played a leading role in the development of United States policy on land reform developed at that time. He later joined the staff of Senator Humphrey and was one of his top aides. He came to AID in 1961.

He will speak to us this morning and give a general exposition of the problem of the food/population dilemma. I am happy to present to you Mr. Waters.

HERBERT J. WATERS: I appreciate this chance to visit with this group this morning. I think the timing and subject matter of the seminar are of tremendous significance, and I want to congratulate those who conceived the idea and developed the discussions that will follow.

I think I can perhaps be most helpful in setting the scope of the problem we are faced with in the War on Hunger. Before I conclude I do want to give you some of my own thoughts directly related to the manpower phases of this problem.

Really, we are just beginning to become fully aware of the seriousness of the world food problem. It is time we became aware of it. Already half of the world's people have experienced chronic hunger, serious dietary deficiencies, and each day approximately 10,000 people, mostly children, die in the underdeveloped countries as a result of illness brought on by malnutrition. The diet deficit areas of the world already include all of Asia except Japan, all of the Middle East except Israel, all of Africa except its southern regions, almost all of Central America, the Caribbean, and the northern parts of South America.

What is of more serious concern to us is that the population of these areas is increasing so rapidly the hunger gap may become far more severe in the immediate future. We need to be concerned. Something for all of us to think about with all of our pride in modern progress is that in our time, in our generation, the world is facing this breakdown in its ability to feed itself. The world as a whole, down through history, has always been able to more or less keep up with food requirements. To be sure, we have had great famines in the past. Usually they were the result of drought cycles and were distortions of a trend rather than a part of the trend itself. The trend through history has always been in the right direction. Mankind has been able, one way or another, to increase his farm productivity at a faster rate than the growth of the world's population.

Throughout this period, we had new frontiers to open, new lands to develop, major technological breakthroughs, more mechanization, tremendous new advances in plant and soil science. Unfortunately, the situation is changing in the world today.

While somehow in the past we always managed to keep ahead of the number of mouths to feed, that is no longer true. In simplest terms, today population has been and is rising faster than food production. It is simply a case of the stork outrunning the plow. There is less food per capita in the world today than a year ago. In that part of the world where the food deficiency is already the greatest, agriculture production is far from keeping pace with the increase in population. The rate of increase of food production in the developing world has slowed since 1960, while population has continued to rise from two and a half to three percent annually.

The world as a whole, developed and undeveloped, has been barely breaking even in recent years, but in 1966, when the world population grew by 70 million, food production for the world as a whole stood still. For the past six years, the world has eaten up more basic food grains than it has produced. We have eaten up our so-called surpluses in this country. We are rapidly eating up our secondary reserves, land previously withheld from production.

Prior to World War II many of the less-developed countries were major food exporters. This is no longer true. The less-developed countries had a food deficit in 1966 on the order of 16 million metric tons. This year that gap has gone up to about 25 million metric tons, and if present population, production, and consumption trends continue unchanged, the deficit confronting the less-developed countries---the food gap we hear so much about---will reach 42 million tons of food grains annually by 1975, and 88 million tons by 1985.

Let me make it clear that population alone is not creating these food shortages. As economic conditions and incomes improve in the less-developed countries, people eat more food and they buy better food.

In the United States, Canada, and the European nations, people are pretty well fed, so that if a person is paid $2 or $3 more a month, he may spend only two or three cents of it for food. But in the less-developed countries a very high proportion of a man's wages, perhaps as much as 70 or 80 percent, is spent for food, and if his income increases by a few cents a month, he probably will spend most of it for food.

The fact is that economic progress has brought increased purchasing power, most of which has been quickly channeled into buying better food and more of it. Yet better food, notably meat, milk, eggs, and poultry, increases demands on the agricultural system because of the animal feeds required to produce them.

The significance of these facts in terms of world stability, peace, and further economic progress should be plain to all of us.

If the developing countries cannot meet these accelerating qualitative and quantitative food demands, the bill for failure will be paid in political and social unrest among people no longer content with silent suffering. It will be paid in the stifling of economic development, in malnutrition, and yes, eventually in widespread famine, and if we let that happen, the bill for failure will be far more costly to the world than whatever it may cost to win the War on Hunger starting right now.

That is why President Johnson in the State of the Union message on January 10 declared, and I quote part of his comments, "Next to the pursuit of peace, the really greatest challenge to the human family is the race between food supply and population increase. That race tonight is being lost. Every member in the world community," the President continued, "now bears a direct responsibility to help bring our most basic human account into balance."

We of the Agency for International Development have geared ourselves to meet that challenge. We have given the War on Hunger our highest functional priority. We are calling on all nations to join us in this task.

We are convinced that it is basic to all the rest of our objectives--international understanding, cooperation among nations, progress toward a better world. How can we expect a better world? How can we expect to have more productivity, more education, more wealth, more equality in opportunity for all men? How can we realistically expect these things when each day more men die or are debilitated by hunger?

Quite frankly, we cannot. That is why we have no choice but to wage war on hunger.

The magnitude of the task is staggering. Projections for increasing food demand over the next two decades, now make it clear that we and the other abundantly producing nations cannot continue to fill the growing supply gap of the underdeveloped nations, whatever our willingness to share our own production. We can justly be proud of what we as a nation have done in sharing our food abundance with the world over the last decade.

But we are approaching a breaking point. Not in our willingness to bear the financial burden of food aid but actually in our ability to produce enough to meet our own demands, our commercial export requirements, and also fill the increasing supply gap of countries unable to buy their food requirements on normal commercial terms. Even if we could produce enough, I am sure none of us want to see huge populations building up overseas that would continue to be dependent on relief shipments from the United States or elsewhere with no end in sight.

In the long run, this would not really contribute to their well-being. But if we are to avoid this mass dependence on food aid, and if we are to avoid famine certain to result when we reach the breaking point, the only answer is greater concentration on our efforts to stimulate agricultural development in the areas of the world now so dependent on external assistance, matched by simultaneous efforts to curb population growth.

There are really two sides of the same coin---increasing food production and slowing down the rate of population growth.

Perhaps no one really grasps the cumulative effect of the present population growth rates in the world. I know these figures sometimes appear startling, but they dramatize what could happen unless changes occurred, and I make it clear that changes must occur.

It took us from the beginning of all time until 1830 to reach our first billion of world population. It took only one hundred years more, until 1930, to reach the second billion. By 1960, only 30 years later, we had the third billion. And at the rate we are now growing, we will reach the fourth billion by 1975---a span of only 15 years to produce another billion. Unless we change that growth rate, it will take only 10 years more, until 1985, to reach the fifth billion and then only eight years more, until 1993, to reach the sixth billion. In the year 2000, only seven years later, demographers tell us we will be confronted with seven billion people in the world.

How are we going to feed them?

The world's population is doubling every 35 years at the present rate of annual increase, about two percent per year with some indications that that rate itself is increasing to about two and a quarter percent. If the world had faced an annual two percent increase in population since the time of Christ, and if there were only two people, a man and a woman, in existance at that time, the experts tell me that today the world would be covered with a layer of humanity 100 feet deep. It is obvious we cannot go on producing people at that rate. If we are going to win the War on Hunger, food production must go up and population growth must go down and both are essential.

With all of the knowledge that man has accumulated since the beginning of time, all the new lands we have had available to develop and exploit, all the technology we have devised, we are still barely able to feed the world today. In fact, we are not able to feed it adequately.

We now face the task of feeding twice as many people in the next 35 years as well as an urgent need to feed them better.

We now know that malnutrition in early years, preschool years between weaning and four or five years of age, stunts mental and physical growth, handicapping the children who survive. None of us can afford to ignore the situation that threatens to create entire generations of mentally-retarded people.

Whatever we have been doing has not been enough. The tragic fact is that the world has not improved the situation very much in our lifetime. Things are getting worse, not better. How long are we willing to let this continue?

We have great new technological resources and we can do things never before believed possible. What possible excuse can there be for not applying our skills to the problems of feeding the hungry of the world? We know that there is no simple or easy solution. We know from experience in our own country the complexities of modernizing agriculture. It took us a span of almost 100 years. We have not that much time to spare in getting the job done in the rest of the world.

Our challenge is to speed up this modernization process, whatever it takes to get it done. We are going to have to look at the general governmental policies and services in developing countries, including budget allocations to agriculture, to procedures with respect to pricing to create incentive, to land tenure, to taxes, and to agricultural credits. We will have to pay greater attention to new technology including research, extension education, and special attention to development and introduction of improved seed varieties, breeds of livestock, and better practices in their production.

We are going to need vastly stepped-up physical inputs for production--including fertilizers, pesticides, seeds, and machines--with appropriate attention to food marketing, distribution, and costs, as well as availability. We are going to need more adequate marketing systems, improved transportation and storage, creation of better processes, and so on.

Basic to all of this, basic to all of these needs for modernizing agriculture, is adequately-trained manpower. This is why I feel your seminar is so important. I cannot help but feel that the War on Hunger may offer an opportunity to attach some new dignity to labor in the developing areas of the world.

The campesinos in the fields, the worker in the fertilizer factories and food processing plants, and those transporting food from farm fields to city markets are really the "foot soldiers" in the War on Hunger, and somehow they must be made to realize they are doing more than just making a living for themselves. They must know that they are performing useful services, helping to build a nation and contributing to the well-being of their fellow man.

The answer to much of the War on Hunger, in my opinion, is human incentive--a fair reward for the farm producer, a decent standard of living for the worker handling the product, and a chance for profit for necessary agri-business support activities providing the production inputs for agriculture and processing the product for the urban consumer.

Quite frankly, the lack of "middle-level" manpower skills may be a greater stumbling block to necessary improvement in food production and distribution than capital itself.

We need private enterprise industries to support agricultural modernization. You know the contribution they made to the modernization of agriculture in our own country. We have private capital ready to explore new opportunities in this field, capital by and large controlled by socially-conscious management recognizing the urgency of the world food problem and willing, in many instances, to defer more immediate profits for longer range development opportunities if it will help solve the world's problem. But make no mistake about it--the profit incentive must be there eventually to attract the private enterprise we need in this War on Hunger.

Yet the real discouragement to considerable investment in agri-business enterprises which support expansion of food production is the lack of trained manpower to operate plants, manage distribution systems, and even to sell to the farm owners. Salesmen are needed who can teach about new seeds, fertilizer, and farm machinery. Much of the lack is still in the middle-level skills that do not necessarily require more advanced degrees of higher education. Much of it can and must be met by greater emphasis on vocational training and management training in the developing country itself.

Great prestige is attached to advanced education in developing countries. Somehow respect is lacking for middle-level skills--the talent and contribution of the man who works with his hands as well as his brain. We need to put some status, some dignity back into the middle-level skills. Somehow we must give an added incentive to that potential worker, not only the "foot soldiers" that have been mentioned, but to the necessary "non-coms," the farm managers, the plant foremen, the fertilizer and farm machinery salesmen who must teach as they sell. They must be trained to understand the contribution they are making in solving a War on Hunger problem and they must have adequate personal incentive to take pride in what they are doing.

Perhaps we need something similar to a "green beret" corps of nonmilitary special forces to help tackle this problem in building dignity and pride, pride in learning the urgently needed middle-level manpower skills for the War on Hunger, emphasizing our concern for solving this "number one" manpower problem in many areas of the world.

Your discussions, I am sure, will cover a wide range of what can be done about manpower problems. Let me emphasize again, however, that manpower development and utilization in the less-developed country is basic to the growth and modernization of agriculture, as well as to the effective utilization of human resources.

The human resource development problem has many ramifications. The most important components, in relation to the War on Hunger, probably are: one, the rapidly growing population requiring more of the products of agriculture; two, generally mounting unemployment, as well as underemployment, in agriculture; three, the shortage of persons with skills and knowledge required for effective agriculture and national development; four, inadequate or underdeveloped organizations and institutions capable of mobilizing human effort; and five, lack of incentives to engage people in many of the activities needed for complete and effective agricultural and national development.

While scientific, technical, and administrative skills can be supplied on an interim basis from external sources, the donors generally are not in a position to supply all the numbers of requisite skills, particularly in the middle-level technical occupations. The less-developed countries need to develop adequate capacity to produce their own skills and manpower at all levels. They need scientific and professional technicians of all kinds, and particularly they need more people at intermediate levels who can provide extension services, who can help organize and run business enterprises,mobilize capital and credit, produce foodstuffs, help utilize the natural resources, direct the building of bridges and roads, and help set up and operate markets.

However, more is involved than just schools and the training of middle-level technicians. Teachers themselves are required, and schools and advanced training are usually needed for these. So you are not just starting with individuals who have the proper background to create a cadre of sales and servicemen, extension agents, and so on; you have to have teachers and facilities first, and you have to have the required amounts of institutional and financial support to put the training to effective use.

A second problem, and a real one, is the amount of education the prospective trainees have on the average, as compared with requirements of the higher-level skills. Some jobs can be handled adequately by on-the-job training, but some require a certain amount of preparatory education, and still others require some advanced academic training. Consequently, job differences as they relate to preparation required and to the best combinations of classroom instruction, demonstration, on-the-job training, and possible additional academic training must be sorted out and identified.

At the same time, I am sure, that as no developed country is or should be interested in merely the growth of its economy, neither should any developing country be interested only in increasing its national product or income. All of the less-developed countries have broader aspirations for social and political modernization. Thus manpower and educational planning and training in agriculture should also be related to "total national development" which encompasses all of the economic, cultural, social, and political processes essential to the building of national identity and national integrity.

Another major problem, which particularly needs to be considered by this seminar along with training, is the allocation of manpower. We must find what can be done to direct human resources which, as I indicated earlier, are in even more critically short supply than capital or production factors in many cases. What can be done to direct these resources into the agricultural sector where the need is most critical but where the returns to the individual in status or tangible benefits are less than they may be for other alternatives? This is a problem of equal importance with training, and it must be given priority consideration by the manpower planning specialists. Given the manpower requirements of less-developed countries with regard to food production, agricultural development is particularly crucial at this time and will remain crucial for some time, requiring acceleration, training, and utilization of middle-level technicians. It must be put on a more solid and consistent basis.

Some of the countries have the capacities and the facilities for developing the type of programs for manpower training and utilization required; most of them today are only in the process of developing these capacities. Therefore, the logical approach to human resource development must go far beyond forecasting the particular types of personnel, training, or education needed. The policy and planning aspects must also be emphasized, for without policy guidance and well-developed and sound manpower plans, effective development utilization of manpower seldom occurs. It is particularly important to emphasize that middle-level technicians be trained in numbers large enough to be effective, that is, to develop the level of generalization of agriculture required for good health and nutrition.

Middle-level technicians, because they work directly with the farmers, can help get agriculture moving if they are backed by appropriate policy and planning and by professional and logistic assistance. Therefore, it is particularly fitting that this symposium be concerned with the topic of the middle-level technician for he will be the focus--the means of rapidly disseminating the results of basic adaptive research and training which will be required if the developing countries are to place their agriculture on a modern production basis.

I indicated earlier that President Johnson has called this total broad concept, the War on Hunger, the greatest challenge to the human family next to the pursuit of peace.

Quite frankly, I regard it as part of the pursuit of peace. The food problem of the world may be of fateful significance to the entire future course of the world. In an age of rising expectations, a hungry world is a potentially explosive world. The failure of the underdeveloped countries to produce more food could lead to political turmoil and the breakdown of order.

I am sure that to those of us used to abundance, the specter of a savage struggle for food and survival among hundreds of millions of people may seem far-fetched. Yet, Secretary of State Dean Rusk testified before a Congressional Committee last year, "Unless we act now to meet the problem of hunger, we may have to act later to prevent people from seizing the food production resources of their neighbors."

Now back through history, when famine existed in one part of the world, it barely touched the rest of the world's people. That is no longer true. We live in a new era of rapid communication. What happens in one quarter of the globe can no longer be ignored by the rest of the world--for the sake of our own security, not just for the sake of humanity alone.

Hunger used to be known as the silent enemy of man. Starvation used to be called the silent way of death. That certainly is not true any more. Instead of silence today, it can mean a resounding roar of violence. Today, when we talk about hunger and famine, we are talking about the fate of millions; yes, hundreds of millions--not just thousands--who used to suffer in famines.

Today, believe me, people know that they no longer have to die of starvation, passively and quietly, not bothering the affluent of the earth. People on the edge of starvation are desperate as well as vocal. In today's world, desperation can only mean destruction. Can we risk such destruction? Can we quibble about the cost of helping others to win this War on Hunger when the stakes are so great? These are the questions the American people, and people of the developed free world, must answer and must answer soon. Time is running out. Let me assure you that your seminar, your attention to manpower requirements, is a distinct contribution for the total effort in the War on Hunger. Thank you.

MR. ZEMPEL: Thank you, Herb, for a very comprehensive introduction.

We have three discussants, and we want to have time for any discussion from the floor, so I would like to ask the three discussants to try to limit themselves to about 15 minutes each.

The first discussant is Mr. Forrest Linder, Director of National Center for Health Statistics, Public Health Service of the Department of Health, Education and Welfare. He has also served as a demographer and social statistician in the United Nations, adviser to the staff of the Allied Commander in Japan on the reorganization of the Japanese system of vital statistics after the war. Mr. Linder has received the highest honor presented by a government agency, the Distinguished Service Award in HEW. I am very pleased to present Mr. Linder.

FORREST LINDER: Earlier this morning somebody reminded us of the solution to the German submarine problem that had been proposed to Churchill, namely the way to get rid of the submarine was to bring the ocean to a boil. Now this kind of solution appeals to me very much, and I have a similar one to propose for the population-hunger dilemma. I like the solution that I am going to propose, particularly because it stresses the human elements of the problem rather than the material and makes the point that the only way to solve these problems is to deal with people and their characteristics.

The solution is not my own but was proposed by a well-known Indian authoress, and I will offer this solution to Mr. Waters free of charge so he can apply it to his program. This Indian authoress pointed out that the United States is beset with a chronic agricultural surplus and that India is beset with a chronic agricultural deficiency. She said the way to solve both problems was simply to trade farmers. She guaranteed that if you could trade farmers, because of the characteristics of the farmer in each country, in a few years the surplus problem in the United States would be solved and the deficiency problem in India would be likewise solved.

I do not want to act like a statistician here and cite more figures about how serious the world population problem is. Mr. Waters has pointed out the basic facts, and I think we are all aware that population and hunger are on a collision course and are almost certain to collide sometime in the next few years or at least the next few decades.

Population increases by compound interest while most other things increase by simple interest, and this gives population an exponential type of curve which you have all seen that goes up more rapidly as time goes on. The estimates for the population at the end of this century vary substantially from seven billion plus to maybe five billion, but irrespective of these differences in the estimates, I think that the essential facts are well known and we might, as the lawyers say, stipulate these facts for the rest of the discussion.

I would like to make a point, again from a demographer's standpoint, that the problem does not reside only in these total numbers. The problem resides also in the structure of the population. That is, the age structure, the sex structure, the urban-rural structure of the population. Some of the biggest problems are going to arise not from the very rapidly growing total numbers but from the distribution of these numbers in the various age classes and other classes as they have to be thought of with regard to the education programs of the country, the health programs of the country, and the social security programs of the country.

Those of you here who are interested in labor problems, of course, are well aware that there is going to be a tremendous influx of people into the laboring age groups of the population, not only in the United States, but in other countries as well.

So these problems of the structure of the population are equally important and must be taken into account as well as the total growth.

But I would like to direct my primary remarks this morning to a different aspect of the whole matter. The population problem, the size of the population problem, is one which you are well aware of. But many people have not yet thought of the size of the solution to the population problem, and this is the line of thinking that I think must be coped with if anything effective is going to be done. So I would like to make a few remarks about the size of the solution to this problem, especially as it relates to the components of population growth.

Now the population growth in any country, again restricting myself to total numbers rather than the structure or composition, is a result of the difference between two things. One is the birth rate and the other is the death rate. It is a difference between these two demographic ratios which creates the population problem.

Now health people are concerned with both these factors, but I want to point out to you the intrinsically different kind of problems that there are in dealing with one of these factors than there are in dealing with the other.

Most public health programs in the past have been directed at this death rate and are bringing that death rate down. Now, when you are dealing with death control, all of the human factors that reside in humans are working for you. The instinct for survival, the instinct for each person to increase his own length of life, the instinct for each society to perpetuate its traditions, its language, its size, its power, if you will--all of these elements, these very basic human elements, are working for you when you are talking about decreasing the death rate.

Now in exactly the opposite way, the same kind of factors are the ones that are working against you when you talk about decreasing the birth rate. Here are all the fundamental motivations of people with regard to reproduction, with regard to sex, with regard to maintaining their tribe, with regard to maintaining their family's security, all of these very fundamental instinctive human resources are working against you in this situation. Now we are trying to bring these two things closer and closer together, but the instinctive reactions of people are to make them go further and further apart.

And it is because of this kind of thing that you have to recognize that the problems of population control are not going to be easily solved, because you have many important fundamental factors working against you on both sides of this equation.

Now ~~the~~ other important thing to think of when you are considering population control and, especially looking at it from a public health standpoint, is that even in situations where you are working under the favorable circumstance of having everybody "for you" in reducing the death rate, the successful programs of death rate reduction have been characterized by small cadres of people doing something to the environment. Take water supply, for instance. A few technicians do something to create a pure water supply or sewage disposal systems, a small group of people do something to the environment. The same is true of malaria control where you can spray whole areas from airplanes or get small groups of people to go around and spray individual huts and so on.

In other words, the successful public health programs of the past have largely depended upon the public health organization doing something to the environment. They have not depended upon the individual members of the population doing something for themselves.

The public health programs that depend on washing your hands and brushing your teeth and personal hygiene which require individual action of individual people have not had the success in reducing the death rate that these programs that impose things upon the environment in which people live had had. But now when you come to reducing the birth rate, there are no known mechanisms for justly affecting the environment unless you invent a contraceptive that you can put in the salt or put in the water supply. The effective method of reducing the birth rate depends on individual action of individual people, and here the public health organizations and the public health thinking have not had the success or have not had the experience and have not needed it in order to affect the death rate in past years.

I rather expect that agriculture people have a better understanding of the elements of this kind of a problem than public health people do because they are more used to working with the individual farmer and attempting to get him to improve his methods and so on.

So the public health organizations have a lot to learn in how they can effectively do something to close this gap between these two important vital rates. Assuming, for instance, that there was invented today a perfect contraceptive--one that works, one that is easy to use, one that did not require too much continuous motivation--even here the logistic problems, the organizational problems, the training and manpower problems that the use of such a device would create in a country such as India almost staggers the imagination. How are you going to reach the people in a country like India with 600,000 little, almost autonomous, separate villages? What if you were in charge of an office and had to write one letter a year to 600,000 villages? That would be quite an operation in itself, just to write the letters. So how are you going to penetrate those villages with an effective mechanism, assuming you had it invented, and penetrate through these human instincts that keep the birth rate high? How are you going to penetrate with any sort of an organization and mechanism and effectively get the birth rate coming down as the death rate is coming down?

So I just want to say that the real problems here, in my opinion, are questions of operations research, of organization research, and of measurement research. There are going to be many false starts in attempting to reduce the population pressures. And there is going to be a lot of waste of money.

One of the important things, in my view, is to develop ways of measuring what is happening so that this effort can be put into more resourceful and more successful methods than the ones that will be tried from time to time.

Well, I think, Mr. Chairman, that the main points I wanted to make were to emphasize the human elements of this problem and the organizational elements of the problem and the measurement elements of the problem. Thank you.

MR. ZEMPEL: Thank you, Mr. Linder.

Our next discussant will be Mr. Roy Dawson, who is an agricultural adviser in the Regional Office for North America, the Food and Agriculture Organization of the United Nations. He was employed a number of years by the Department of Agriculture, and he received his doctorate in Agronomy and Soils. I am happy to present Mr. Dawson.

ROY C. DAWSON: Thank you, Mr. Chairman.

For nearly 22 years the Food and Agriculture Organization has been combatting hunger and poverty. We have had some strong allies, but in spite of the total effort there are still many hungry and poverty-stricken people in the world today. Although world production of food and agricultural products has increased as a whole, it has not kept pace with the population growth. In fact, per capita food production is below prewar levels in all developing regions of the world except the Near East. The present world food situation is, in the words of Director-General Sen, "precariously balanced."

The year 1965-66 was an especially bad crop year for most of the developing countries. The reason was adverse weather conditions in these countries. Food crops underwent a greater setback than did agricultural production as a whole.

I shall not go into the history of FAO or its accomplishments. I should like to emphasize, however, that there have been no widespread famines during the last two decades, although there have been threats of famine which have been forestalled by prompt national and international action.

Fortunately, there were large surpluses of stored grain in North America which served to alleviate the recent food shortage in India. These reserves have now diminished until they are only adequate as a hedge against a bad crop year or two. Should we be faced with a similar crisis today, how would the deficit be met? It is obvious that the developing countries themselves will have to produce more of their own food in the future.

Now, I shall discuss briefly some of the measures being taken or under consideration by FAO in its fight against hunger.

In 1960, under FAO leadership, the Freedom From Hunger campaign was launched. Although publicity plays an important role in the attack on hunger, the campaign is based heavily on action programs. Many member nations have formed Freedom From Hunger committees which make people aware of the hunger problems and bring donors and recipients together. The world fertilizer industry has been a liberal supporter of this campaign and, as a result of its support, fertilizer needs have been determined and the results of fertilizer use demonstrated in several areas of the developing world.

Another Freedom From Hunger activity is the Young World Appeal. Over half (55-60 percent) of the population of the developing countries is under 20 years of age. As Director-General Sen has pointed out, the greatest underutilized resource of the world today is the idle or "fallow" time of the world's underprivileged people. Youth mobilization for productive purposes in self-help activities is the objective of the Young World Appeal.

The Massey-Ferguson Company of Toronto is sponsoring, under the Young World Appeal, an activity known as the Young World Food and Development Project. Under the project, attention will be focused on out-of-school educational youth programs. The usefulness of these programs as a channel for mobilizing youth in self-help activities has already been demonstrated in over 60 developing countries. The learn-by-doing methods which are employed involve youth in activities which are both educational and productive. The Young World Food and Development Project will reach its climax in September 1967 in a world conference which will be held in Toronto. At this conference, the preliminary findings of the project will be evaluated and plans will be made for the implementation of a worldwide program. It is anticipated that 30 to 36 million young people will become actively involved through the expansion of this project over the next 15 years.

Numerous smaller projects have been carried out under the Freedom From Hunger campaign. The World Food Program is a joint effort by FAO and the United Nations to stimulate economic and social development through aid in the form of food. The resources are provided by voluntary contributions in commodities, services, and cash made by member nations of the two organizations. The program was started in 1963 on a three-year experimental basis. Having survived the experimental stage, it is being continued and expanded.

Food aid is especially useful in labor-intensive projects. For example, migration and settlement projects can use food aid while migrants are busy bringing newly-occupied land under cultivation. It can also fill the food gap resulting from production dislocations during land reform adjustments. Animal production may be improved by providing feed to supplement inadequate supplies of locally grown feed. Food aid is also used to provide food during emergencies.

In view of the continuing deterioration of the world food situation, the Director-General has proposed the setting up of a Food Production Resources Program. For this purpose, and in order to make the necessary impact, a sum of $500 million per annum has been suggested. Ninety percent would be channelled bilaterally and 10 percent multilaterally. It would be used for providing farm production requisites for the use of those developing countries that are not able to buy or produce them. The Food Production Resources Program is proposed as a means of stimulating agricultural production in the food deficient countries in the critical years immediately ahead.

A considerable amount of FAO's regular program resources are being put into the development of a worldwide plan to identify and overcome the bottlenecks to agricultural and economic development in the developing countries. FAO's Indicative World Plan for agricultural development has for its objective an analysis of the problem as a whole in an integrated way. It will serve as a basis for policy guidance to both the developing and the developed countries. Its sights are set on two time horizons in the next two decades--1975 and 1985.

The Indicative World Plan will attempt to bring into focus a wide variety of technical, economic, sociological, and cultural impediments to agricultural production. It will attempt to convert a jungle of apparently unrelated information in which development perishes into an orderly structure in which the road to development can be clearly seen. It is intended to provide a clear picture of what will be required to meet food needs in the developing regions during the next 20 years. It will be a guide to action.

The Indicative World Plan will examine such issues as the following:

The relative emphasis to be given to different crops and forms of animal husbandry
The adjustment of production of export commodities to long-term market prospects
The provision of adequate rural employment under conditions of rapid population growth
The mobilization of underemployed labor for productive purposes
Alternative land use policies
The balance between agricultural and industrial development, with due regard for local processing of food, agricultural, and forestry products.

The plan will also take into consideration the effect that agricultural and trade policies of the developed countries have on export opportunities for the developing countries.

The plan is called "indicative" because it only suggests guides for government action. It is not a plan to be imposed on anyone. It is an attempt to place before governments a dynamic analysis of the situation which is going to develop over the next 20 years. Government may thus be made aware of policy choices and the probable consequences of alternative policies.

The plan is being prepared in close association with member FAO governments. Hopefully the existance of an integrated analysis of the policies, measures, and inputs required for satisfactory growth of the agricultural sector of the developing countries will stimulate the required action, from both developing and developed countries, to turn the tide in the battle against hunger and poverty during the crucial period immediately ahead.

The United Nations Development Program (UNDP) was created by the UN General Assembly in November 1965. It combined two UN programs, the UN Special Fund and the Expanded Program of Technical Assistance. The UNDP finances about $100 million worth of projects each year. About 60 percent of all UNDP projects are concerned with food and agriculture and, consequently, are executed by the Food and Agriculture Organization. This means that FAO is responsible for recruiting the personnel (except where subcontracted) and carrying the project to completion.

Since manpower is the main topic of this symposium, I should like to say a few words about it. I have been struggling with the recruitment of technical manpower for the past 11 years. It is a much larger problem than it was 11 years ago. The demand is considerably greater and the supply of available agricultural experts is smaller.

There are more agriculturally related jobs than there are graduates from the land-grant colleges and universities. At a recent conference that I attended, there were three times as many vacancies listed by the placement service as there were applicants. The same trend seems to prevail in Canada. The disturbing factor is that the youngsters are not going into the colleges of agriculture in sufficient numbers to meet the needs. What can be done about it? I do not know; maybe some suggestions will come out of this meeting.

Perhaps some sort of home-based career service is needed, where participants would serve abroad for a period of time and return to their former jobs at the end of their assignments. This is being done to some extent by the Federal Government. Under Public Law 85-795, employees are permitted, with the consent of their agencies, to serve for a period not to exceed three years with an international organization. This has helped our problem somewhat, but is far from a solution of it.

An associate expert program by the U. S. Government, such as initiated by the Dutch Government and followed by several other European Governments, could serve a very useful purpose. Under such a program, promising young agricultural graduates are assigned to an international agency under the supervision of a senior expert. The opportunity is thereby provided for gaining the experience necessary for pursuing a career in agriculture in the developing countries. Both donor and recipient governments, as well as the individual participants, stand to gain much from such a program.

Perhaps there are other ways of solving the problem of providing technical manpower for assisting the developing countries. The need is great, the supply is short, and it takes time to train and develop agricultural experts. This is a matter that deserves serious and immediate attention.

MR. ZEMPEL: Thank you, Mr. Dawson.

The last discussant is Mr. Gene Martinson, Labor Economist, and prior to entering the foreign service he spent a year at the London School of Economics. He has served as a Labor Attache in Australia, Israel, and Norway, and his last post was in Nigeria. At the present time he is assigned in Washington in AID and the Office of Labor Affairs. I present Mr. Martinson.

EUGENE C. MARTINSON: This symposium is based upon the proposition that manpower strategy, manpower techniques, and manpower institutions can make a significant contribution toward assisting the food-deficit nations supply adequate nourishment to their growing populations. I assume that most of those present, however much they may differ in emphasis or interpretation, support the basic thesis, as I do.

Food Production and Population

In physical terms, what must be done to provide sufficient nutritionally adequate food for the world's population is to raise the rate of agricultural production to a point where it consistently exceeds the rate of population growth. The dimension of this effort will depend partly upon whether the rate of population growth can be moderated. But efforts to induce increases in food production and efforts to encourage voluntary fertility control are in many ways interdependent. Success in one facilitates progress in the other. Both require the demonstration to countless millions of poor and underfed people that rational efforts within their capacity to undertake will enable them to substantially improve their own and their children's welfare. But to a great part of the world's families the present situation is one in which voluntary efforts to limit the number of children are not very meaningful in terms of prospective improvement of the families' welfare. On the basis of perfectly rational deductions from past experience, birth control may constitute a risky step which may threaten the family's survival. In the end the demonstration that a better way of life is available independently of individual efforts to limit fertility may be a necessary condition for creating a rational basis for family planning.

Manpower Requirements for Transforming Traditional Agriculture

The greater part of the population of the present and prospectively food deficient countries are farmers and peasants and their families engaged in subsistence or low surplus traditional agriculture. In order to improve their welfare and to provide a rational basis for population limitation, ways and means must be found to increase the rewards for their efforts by making it possible for them to produce a substantial food surplus over their current needs. But in thinking of the nature and magnitude of the effort required it is useful and sobering to consider that the farmers of the less-developed countries must increase their yields per acre far faster than American farmers were required to do until the 1930's. Historically, the mature countries increased their crop yields at a rate of 1 to 2 percent per year. To achieve a rate of growth of 3 to 4 percent necessitated by the combined pressure of land and population, agriculture in the less-developed countries does not have a hundred years to modernize. It must shake off centuries of stagnation and enter the modern world on an equal basis. There can be no slow recapitulation of the separate steps by which agriculture has become modernized elsewhere. Schultz has called this process "transforming traditional agriculture." This is the central task of the War on Hunger.

Transforming traditional agriculture at the technical level requires first a supply of new and superior inputs of seeds, fertilizers, implements and machinery, pesticides, and controlled applications of water. The rational and effective use of such inputs in the proper combination and sequence with the relation to the physical and spatial qualities of the land is sophisticated procedure calling for a literate and trained agricultural labor force capable of absorbing and applying new knowledge and techniques. A skilled labor force, however, will not remain on the land to apply its skill to food production unless the reward for its efforts and the degree of risk involved clearly make it worthwhile to do so. Adequate incentives are thus a third major requirement.

About the task of providing superior inputs much is known in a general way, particularly with regard to the basic scientific principles involved. But there are large areas of ignorance in translating existing scientific knowledge into specific technologies and practices capable of substantially increasing agricultural yields under the local conditions met in the less developed countries. This is the research gap.

A second gap occurs when the proper inputs are known but cannot be produced and distributed. This is the supply gap.

A third gap arises when inputs are known and can be supplied but can only be partially utilized because of the lack of knowledge and skill on the part of the producer. This is clearly the most important and difficult gap to span of all. For while knowledge and supply of superior inputs may be prior requirements for the task of transforming traditional agriculture, they are easier to acquire than the increase of skills on the part of the farmer. Technology and fertilizers can after all be imported, borrowed, and adapted, but farmers' skills must be developed on the spot. The former requires the upgrading of the skills of a relatively small proportion of the population; the latter requires ultimately large additional investments in education and training for more than half the labor force.

The heart of a manpower strategy for transforming traditional agriculture must consist of developing, allocating, and effectively utilizing the human resources required to close the major gaps in agricultural research, supply, and farmer skills and of dealing with the ensuing manpower redeployment. In one way or another all of the participants in this Symposium will be addressing themselves to specific aspects of these general requirements. I would like, therefore, to go onto certain other related but general considerations.

Agriculture and Employment

So far the argument for transforming agriculture from traditional to modern forms has been put in terms of the dual necessity of increasing food production to feed growing populations and of providing a rational basis for bringing population into balance with food supplies. There is another powerful argument in favor of giving human and material priorities to rural development. It has become increasingly apparent that for countries in the early stages of industrial development whose modern sectors employ only a small fraction of the economically-active population no feasible rate of industrial growth could provide employment for all of the oncoming labor forces now being born or likely to be born during the next twenty years. How to productively utilize this surplus of present and potential unemployed and underemployed manpower has become one of the most difficult and pressing problems of the underdeveloped world.

To do nothing about these surplus human resources is not only a confession of moral and technical bankruptcy but an invitation to continued stagnation and general misery. It was once fashionable among certain intellectuals and government planners to write off tens of millions of marginal workers as an inevitable, if regrettable, human sacrifice to the welfare of the coming generations. Whether in view of recent trends this point of view is still fashionable is, perhaps, doubtful. The indications are that in Asia, Africa, and Latin America alike political stability has become increasingly dependent on the ability to absorb an increasing rather than decreasing percentage of its population into modern productive activity.

The answer to the dilemma of apparent surplus human resources does not lie in the direction of banning further increases in industrial growth. Nor does it lie in the direction of limiting industrial development to high-cost, technologically-antiquated, labor-intensive industries, although in most countries the possibilities of increasing industrial labor intensity without serious prejudice to growth are far from exhausted. Rather, the logic of the situation in less-developed countries generally requires that the surplus labor not absorbed directly in either industry or agriculture be mobilized and utilized in an effort to increase the pace of rural development and quicken the transformation of traditional agriculture.

Only part of the incentives required to induce farmers to acquire new agricultural skills and to invest in superior inputs are contained in raising the ratio of his return to his costs. Much of the remainder lies in the quality and attraction of the rural environment. Increased investments are therefore required to improve local educational and health facilities, to provide better access roads, to establish local industries to employ sons and daughters, to provide employment and income in slack seasons. Development of community centers close to farm populations does two things. It provides local markets for agricultural products and employment for those released from agriculture. More importantly it provides a center and home for advanced sectors of the population who could not otherwise be induced to work in rural areas. In turn, the farmer is stimulated by his contact with the culturally-advanced population and services of the rural center.

While ultimately the modernization of agriculture will release manpower to other sectors, its virtue as compared with investment in industry is that efficient use on the average of far more units of labor per unit of capital input is possible in agriculture. This possibility is most dramatically illustrated in Japan where yields per acre in rice are the highest in the world though the average size of farms is only 1.2 hectares, and the number of hectares per farm worker average 0.42. Formosan agriculture has also succeeded in increasing its yields by labor-intensive techniques.

In other areas of high population density relative to arable land, cultural and institutional differences may preclude close duplication of the Japanese and Formosan models. The existence of these models nevertheless demonstrates that it is technically and economically feasible to modernize agriculture with labor-intensive techniques. Research to develop and adapt such techniques to the specific conditions of other countries is almost certain to have a high payoff.

Under conditions where industry is incapable of absorbing the growing and youthful labor force it is surprising that the potential absorptive capacity of the agricultural sector has not received more attention. Farmers and family heads are natural manpower and employment planners. Without regard for sophisticated marginal theory they train, allocate, and utilize family manpower with the aim of maximizing the total product while employing each family member to the best advantage. No family member is unemployed simply because his marginal contribution may be less than his share of the total product if there is no alternative opportunity available to him.

Contrast this to the theoretical behavior of a firm whose goal is to maximize profits rather than produce, and which is indifferent to a number of workers required to achieve its goal. It will employ labor only up to the point where the product of an additional worker would just equal the cost of employing that worker. At this point it could still increase its total product by employing more workers up to the point where the marginal product of additional labor became zero. But such conduct would reduce profits. Labor intensity in the modern commercial enterprise is thus largely dependent upon wage rates. But in a dualistic economy wage rates are unlikely to reflect the true availability of labor.

A country whose manpower resources are abundant but which suffers from a lack of capital is somewhat in the situation of the farm family. If the average welfare of all of its citizens is its goal then it will seek to maximize its total product making use of the productive contributions of all citizens who can if employed add something to the total. Then by taxation it will take a tithe of the total product to use for renewal and expansion of its capital stock.

This, of course, amounts to saying that the profit allocation signals of a developed industrial economy are not effective guidelines when applied to low income agricultural countries with large populations relative to land and/or capital resources. Even if it were the intention of such a country to allow the market mechanism using profit guidelines full scope, only a small part of the savings would originate from the commercial sector. The greater part of investment would have to be public investment whose source was some form of taxation. The criterion used for allocating public funds would have to be some form of cost-benefit analysis. Except in a rigidly authoritarian state whose goal might be to maximize industrial growth rates at the expense of large sectors of the population, public authorities guided by democratic principles would have to give priorities to distributing investment funds in such a way as to maximize total employment and total product rather than rapid growth as such.

Fortunately an agricultural country with a high population to capital resource ratio need not be forced to make a hard choice between growth and employment, industry or agriculture. Through placing its priorities on agricultural development it is not only addressing itself to the maximum development and utilization of its most abundant human resources, but it is building the most effective base for future development of industry by developing the manpower, supplies, and markets on which industry can build. It is also safeguarding its growth from future stagnation resulting from unbalanced development, excessive dependence on international markets, and overconcentration on sectors in which it has the least comparative advantage.

New Directions for Manpower Policy

American manpower thinking in terms of the less-developed countries, in my opinion, has been guilty of a number of excesses and misplaced emphases which must be recognized and corrected if the War on Hunger is to be approached in the realistic and humble spirit that its seriousness deserves. In particular, considering that a manpower approach to development starts with people and their needs, it is difficult to explain or excuse the relative neglect by manpower planners of the agricultural sector which contains two-thirds or more of the human resources of the less-developed countries. This Symposium should have as one of its aims a significant contribution towards the restoration of balance in this respect.

Manpower experts have placed too much emphasis on long-range educational planning as the key to the development of human resources. In some cases the stress placed upon the identification and subsequent development of specific and supposedly critical high-level skills needed ten or fifteen years hence has led poor countries to make large investments of their scarce resources in educational facilities on the basis of very sketchy data derived from planning assumptions which were at best only educated guesses. The underemployed and unemployed degree holder has already put in his appearance in countries whose per-capita income is less than $100 per annum.

While any country needs to have overall manpower goals and a general strategy of human resource development, the really critical test of manpower planning is whether it can be made to have practical operational significance in terms of the immediate and short term problems which developing countries face. Overconcentration of attention on the assumed manpower needs of the future diverts needed attention from the more critical manpower and employment problems of the present. Just as a steel plant or international class airport may represent a more symbolic than real contribution to the material development of a desperately poor country, a showcase university justified by high-level manpower projections can represent more the appearance than the reality of genuine human resource development.

A further danger of concentration on manpower planning in gross terms is the strong possibility of overestimating the numbers of formally-qualified experts and the institutional facilities required to achieve adequate year-to-year progress. If one begins with the general proposition that the transformation of traditional agriculture requires, at minimum, functional literacy on the part of the overwhelming mass of peasant agriculturalists and proceeds to project the manpower and institutional requirements of such an immense undertaking, the resources required take on astronomical character. When on the same basis one projects the number of extension workers, health workers, youth leaders, engineers, and the whole panoply of trained people required for rural transformation, one moves even further away from the real world. Harbison, for example, in a recent paper suggested that the numbers of additional trained people necessary to spearhead a comprehensive program of rural modernization would be at least equivalent to the total number of teachers presently employed in the formal educational system. In Nigeria he estimated on this basis that 100,000 additional trained persons would be needed. He rightly termed the implications as "breathtaking."

A more realistic view, in my opinion, of the manpower requirements for the transformation of traditional agriculture would relate the demand for trained manpower and the educational requirements for farm producers more closely to the short-term specific needs and opportunities on an area-by-area basis. These needs and opportunities are rarely homogenized in terms of time or space. A vast agricultural extension service may wind up as an enormous boondoggle unless the necessary new inputs and associated technology to provide significant yield increases have already been developed and can be supplied. Ethiopia's Minister of Agriculture, in a country with tremendous agricultural potential, recently stated: "The methods and equipment now available to farmers allow neither an improvement in the quality nor an increase in the quantity of output."

As the possibilities for modernizing agriculture are developed in practical, paying terms, crop by crop, zone by zone, progress is likely to be very uneven. Rarely will technical progress, land reform, transportation and distribution systems, cultural receptivity, and all the other necessary preconditions for a transformation coincide for all areas at the same time. The absolute necessity for conserving limited resources and supplies of trained personnel consequently dictates that the manpower planner should concentrate less on attempting to forecast long-range global requirements based upon relatively meaningless averages, and more on identifying the specific needs of the particular areas where an agricultural take-off is demonstrably feasible, and where concentrations of trained manpower can be most effectively utilized.

Related to this principle of conservation of limited material and human capabilities available in the short run is the question of the relative payoff from upgrading and more effectively utilizing existing personnel and institutional resources as compared with the development and proliferation of new ones. In many less-developed countries it is extremely questionable whether the existing primary and secondary educational institutions are presently prepared either in curriculum or in quality of teachers to equip their students to assimilate and utilize the techniques and inputs of modern agriculture. Futhermore, the dropout rate from such schools is extremely high. Will anything be gained if these institutions are widely proliferated, or if attendance is made free or compulsory or both?

The most important contribution manpower strategy can now make to the kind of balanced development based upon the modernization of agriculture, the maximum development of employment opportunities, and the safeguarding of the growth capability, which most of us have in mind, lies in the development and perfecting of operationally significant manpower institutions at the area or market level, or if you will, where the action is.

Such manpower centers should be equipped to identify the most pressing manpower needs of their area in terms of specific skill shortages, adequacy of educational and training institutions, wage levels, characteristics of the labor force, agricultural and industrial trends, degree of unemployment, and opportunities to create new employment opportunities. This analysis of needs should be an integral part of the development of a community and area plans to moblize the resources of the whole community for local development. Finally, the gap between what can be accomplished locally by local initiative and resources and the residual needs, expressed in terms of a schedule of priorities, should be transmitted to higher authorities at the national or regional level.

The development of such local centers which combine labor market analysis and employment services with functional local institutions such as employers, governments, schools, extension services, health services, farmers' organizations, cooperatives, and trade unions in coordinated efforts to effectively develop and utilize local human resources for accelerated development, in my opinion, has a higher priority than national manpower planning as hitherto practiced. I urge that more of our thinking as professionals, and more of our technical assistance be devoted to this effort.

MR. ZEMPEL: Thank you, Gene, for a very thoughtful analysis.

Any questions from the floor or comments?

DISCUSSION

KARL LUNDBERG, American Institute for Free Labor Development: I wonder if Mr. Martinson could elaborate a little bit more on the nature of the community centers to which he has given considerable emphasis?

MR. MARTINSON: Well, it is easier to propose than realize. The nature of these community centers is an unspecified institution. I think they should be built or could very well be built around an employment service or a local community development planning organization, but they should utilize community resources and organizations which are capable of analyzing human resources and needs and broadening them so that what is arrived at is not only an analysis on the local needs of the community but what the priorities are. The analysis should be related to the planning process so it is not only an analysis, but the development of a plan by which an attempt can be made to provide operational programs to attack what has been established as a local need.

I suggest that we must devote our thinking and attention to try and develop operational centers through which we can identify needs and mobilize resources and make human resource development a conscious part of the local community, a conscious part of the institutions which are actually engaged in the action, rather than something which exists at a rarified national planning level.

JACK FRANKEL, Peace Corps: In line with these remarks on the training centers, are these centers similar to what Israel has started in a number of African countries, young farmers' training centers?

MR. MARTINSON: I should know more about Israel than I do since that was one of my countries. I am not aware of these training centers but certainly, the crux of this idea is to have training centers as part of the scheme, that is, to be integrated for the real needs of the community and not simply established because a national plan says that there must be so many people trained. So, a training center which was a part of this local manpower development complex would be one of the essential ingredients. However, training centers have a limited value unless they are related to immediate and specific needs and unless you have jobs for people you train.

MR. ZEMPEL: Any comments or questions on any aspects of the problem?

HARRY LOGUE, Elk River Development Agency: I would like to ask Mr. Dawson, are we talking about certification when you say you are looking for people to develop underdeveloped nations; are we looking for certification here to the detriment of qualified people? Do we not have a number of qualified people that might go and serve who are not graduates of institutions?

MR. DAWSON: Our field was concerned mainly with education in agriculture at a higher level, that is, at the university level. As a result, we have to have people who are university trained, and there are very few exceptions to it. Of course, when we are speaking of theyouth program, that is an exception, but under our regular program, we are doing quite a bit of training. We have a number of country or regional training programs that are going on all the time in different parts of the world. We have a fellowship program in which we bring trainees from other countries to this country, but there again they usually have to have the academic qualifications.

Another reason is, we cannot send people to these countries unless they ask for them, that is they specify their own priorities, they arrange their priorities, we try to fidd the best people we can get to fill those needs.

H. S. SWINGLE, Auburn University: I have been greatly interested in this discussion and I think that Mr. Waters has hit the nail on the head here in stressing the necessity for incentive. In ~~many~~ underdeveloped countries there could be more food produced if there were incentive to do it; but in general, the people see nothing for sale that they want to buy and this tends to kill incentive for them to work harder. An instance of this in the United States, of course, was the advent of the automobile which put a lot of people to work first getting an automobile and then to keep out of debt and keep the automobile working.

Another phase of this is extremely important. We are talking about manpower, whereas we should be talking about manpower plus power.

The civilization we have in the United States is based on the use of power by man and I calculated, some years back, that each man, women, and child in the United States has the equivalent of 30 men working an 8 hour day for each of them if we consider all the power that we use. Now, as a boy I used to be put at the end of a row of corn to hoe it. After I worked it for 15 or 20 minutes, I looked at what I accomplished and I looked down to the far end of this row, and I said, "This is impossible." When I looked over and saw row after row after row after row, I knew it was impossible.

Unless people feel that they can accomplish a task relatively easily, there is not an awful lot of incentive to start out on new endeavors. So we must consider that these folks cannot develop unless they have more power at their command.

It is interesting to think of this little story about the Indian writer who says that if we took the American farmers and dropped them in India and brought the Indian farmers over here, they would transform India. They would not, unless they could carry their tools along. If they got out and had to draw water out of a well or go down to the stream and carry it up on their heads, if they had to turn over the soil with a hoe and so on, there would not be any great progress in agriculture. The use of power is something that has to go along with this other thing.

I have one other nice suggestion. You know, philosophers have always looked forward to this great time when all the wants of man are satisfied. None of them were silly enough to ever think of a time when all the wants of women would be satisfied. Now this is one of the problems of India. They keep all the women in the houses, they do not go downtown to buy things and this does not put the men to work.

MR. WATERS: This would be a good opportunity to reemphasize one point that I wanted to make. I hope in your discussions you do not get in the position of thinking of manpower only in the sense of training the agricultural producer. The serious concern we have about manpower is in every segment of food, from the land to the consumer's belly. You are going to have to be concerned about manpower in the plants that produce farm machinery and fertilizer, in the distribution systems and sales forces, and about managerial skills needed to collect a crop and store it, handle it, process it, and distribute it back to the consumer.

With all due respect to the contributions of land-grant colleges, whose research centers and extension services did make a tremendous contribution in building a base organization in American agriculture, the real acceptance by American agriculture of modernization progress came when the industrial side of America picked up the knowledge of the research centers and land-grant colleges and started training and designing machinery and fertilizer and chemical tools. When they put out the hybrid corn salesmen, the fertilizer salesmen, the farm machinery salesmen, the extension agent had 100 arms and these sales forces proved to the farmer that he could make more money by using their products. This is what is now lacking in many of the developing countries of the world.

We have done the first job of building a governmental structure of extension services in most developing countries of the world. We have done a job of starting the basic institutional development.

In my opinion, the gap that we now have to fill is this one of supporting services to agriculture in the commercial stream of life in these countries. We have given a great deal of emphasis, bilaterally and in the international organizations, to supporting educational institutions.

There is a step beyond. The next step would be for the society to make use of its cooperatives, its labor unions, and any vehicle they have in the country to start developing this manpower training. Again I say at the middle-level, not everybody getting the highest degree available and becoming reluctant to go out to work and get their hands dirty.

I think back in our own country--I had a little experience in this after World War II--out on the West Coast. We started with the GI training and educational programs. Every parent wanted his son to go back to college and become a professional man. Upgrading of education in our own country created a serious threat to the supply of skilled workers, so a very heavy apprenticeship training program was opened jointly by labor and management. The first job they faced was this question of how to provide some dignity for a young man learning to become an electrician or a carpenter, instead of a lawyer or a doctor.

We started paying attention to apprentices rather than just letting them be a routine thing. We started with community graduation ceremonies for apprentices and apprentice recognition as a contribution to the community. My appeal is for something of this nature to be applied as recognition for service in a developing country.

With reference to this community center idea, I am a particular fan of the work being done by ORT in many areas of the world in vocational training activities and I think they do a tremendous job. I am familiar with some of the work that Histadrut has done. They have devised some techniques in Israel that will work very effectively. They have taken the situation, not as somebody dreamed it up in the United States, but as it exists, with all the circumstances and conditions of the country they are in, and are training people to meet the need there.

I just recently have been in contact with several major firms involved in agricultural expansion in other areas of the world. California Packing Corporation is in some substantial enterprises in Kenya. They are seriously disturbed that they are not going to have the manpower to run their processing plants that will provide a market to the farmer producing fruits and vegetables.

You have fertilizer plants coming into production in another year in India and they need many, many times as many fertilizer plants in India, but one plant has as many as 2,000 jobs for men to get out to the village level to demonstrate and sell fertilizer. They do not have to be Ph.D.'s in agriculture, but they have to be good enough to be able to convince the farmers and to explain how this fertilizer works and be able to discuss the farmer's problems with him.

These are the challenges as I see them, the challenges I think we are going to have to devise some new techniques and new tools to meet. We have to provide some dignity for a middle-level skill. In many areas the Peace Corps has made a tremendous contribution because we have shown that our young people, the best, the cream of the crop of our young people, are so willing to go out and work with their hands as well as their brains and get something done. I think much more may have to be developed along the lines of the Peace Corps using rural background young people who have a knowledge of agriculture to help take on this task. It is a challenging task and one that all of us have to be scratching our heads to come up with new ideas about and not to stick to all the classical approaches. Thank you.

MR. ZEMPEL: Mr. Dawson, would you like to comment?

MR. DAWSON: I would like to say that I am sure we in Food and Agricultural Organization agree with just about everything that Herbert Waters has said. I think that many things he referred to will have to be done by private industry, just as was done in this country and that is one of the things we are very much interested in seeing done. For example, many of these Special Fund Projects are just for the purpose of creating the infrasturcture that is necessary in order to bring in private capital.

We also have small implement specialists in our agricultural engineering branch who are trying to improve the hand tools and the animal-drawn tools which are still used in many countries.

We also have counterpart personnel in all of our projects who work along with our experts, as we call them. In many cases the counterpart personnel are sent to some of the advanced countries for additional training, and then they go back and take the place of the expert and multiply his hands by training local people.

And certainly the price incentive is something that needs more attention. The producer should have the greater share in what he produces and, as I say, I think we agree just about 100 percent on what Mr. Waters said.

MR. ZEMPEL: We take this gentleman first.

R. H. WILSON, Agency for International Development: I just want to say two or three words here. Being a professional training man, it scares me to hear so many people talking about preparing training programs. I worked for years and years trying to get people to turn to training programs, but now we seem to be in a bog of trying to stop the training programs because so many times you start a training program without really knowing what the problem is. As Mr. Waters has said several times, I think the real problem is not increasing food production, the real problem is putting this food in the place where the people can eat it.

That invloves many other things besides just teaching the farmers how to produce more corn and potatoes and beans and whatever they need. We have to identify these problems of transportation and food conservation. I have seen places where they promoted greater food production, but they never could get it to the people who needed to eat it, and it spoiled. I have seen many other places where 25, 50, 75 percent of the food is spoiled because they had no proper conservation. I think these are the kinds of problems which are a particular example of where we teach people how to use tractors and equipment, modern equipment, and nobody provides for bringing in the spare parts for maintaining that equipment.

Now before you start training programs, I think you have to find out what the problem is, the real problem, and work out some kind of logistics for the people who need the skill. As far as the training of the people is concerned, it is a simple thing to do. I know how to do that, but defining the problem and working out the other processes is the really important one.

MR. ZEMPEL: Mr. Frankel?

JACK FRANKEL, Peace Corps: I have observed one very serious problem in this use of middle-level skills that Mr. Waters was talking about. That is that these developing countries have been too well trained by FAO, AID, and the U. S. Department of Agriculture and other foreign missions. The less-developed countries invariably demand top-level technicians. If you offer them a farm background youngster from America who can do a fantastic job, they turn him down because they say they want someone with a degree. I say that part of our problem is education that they have received from FAO and from AID. I know we have to plug in at different levels, but opening up the assistance to middle-level skills is not quite as easy as you may think. In other words, just the offering of assistance is not enough. There must be a new education, an education in dignity of labor and this is the kind of help the Peace Corps has offered.

MR. WATERS: All I can say is I agree 100 percent and this is the kind of thing I am groping for. I do not know the total answer, but we do have to find a new answer to exactly this. I think part of the answer is in tie-ups with indigenous organizations and the use of cooperative movements, the use of labor organizations within a country. I would also mention the American voluntary organizations which are working in many of these countries abroad and have a structure of their own that gets out to the village level. They are moving away from the relief aspects into agricultural development and technical assistance kinds of activity.

The IVS young people have had acceptance and approval for many years. They had to earn it by their willingness to go out and live in the villages. Our difficulty, it is true, is that we have to deal government-to-government and these governments tend to judge prestige by the number of degrees after a name. Somehow we are going to have to convince them there is another segment of their society that has to be covered.

We are getting another type of gap, not only a food gap, but the gap between the educated elite in these countries and the mass of nonskilled laborers. I have seen this in a number of countries and I am sure you have, and we are concerned about it.

MR. ZEMPEL: Mr. Dawson?

MR. DAWSON: I would like to make it clear that I have no quarrel with training large numbers of people at the intermediate level where necessary, but we must look ahead and train people in research. That has been the backbone of the progress in this country and other developed countries. I think the same would be true in the underdeveloped countries. We have to have people who can do research under the natural conditions that exist there and you cannot train research people overnight. It takes time and skill.

DISCUSSION

MR. ZEMPEL: Any other comments or suggestions?

MR. MUGAAS, Department of Labor: I want to make this comment with reference to the observation that in the United States many have moved from the country to the city and have enriched the city, not only for the first generation, but for generations to come. But if you are in a country like Peru, and you get farm boys into the city, they come with very little ready contribution that they can make to the city. I think that we need some way of getting more interchange between the city and the country in the developing countries. And that is what Mr. Martinson was pointing out when he was saying we have got to have training centers, or some means of getting something in between the small village and the city, to make information pass from one to the other.

MR. ZEMPEL: Thank you. This gentleman.

H. S. SWINGLE, Auburn University: I want to also emphasize the point that we have nothing to extend until we actually have a program that will work and that, of course, is one of the troubles with sending, let us say, some farm boy to Central America or Asia. He may think he has something but he can waste the labor of these people by telling them to do things that really are not right and will not work in those areas.

Also, I want to once again agree with Mr. Waters here that one of the things that is very important is to get these people to feel there is a dignity in their labor. I am sure some of you must have gone back to the horse and buggy days as I did, where you hitched up the horse and put the buggy behind and

and drove on down the road. A few years ago, our agriculture students had an affair and they had a parade and in part of the parade they had a very dignified man sitting in a buggy. Except they were ingenious and they took the shafts off the front of it and put it on the back and they put the mule in back of the buggy pushing the buggy. And then they took some ropes and ran them up from the wheels and gave the man the ropes to drive the buggy on down the street. Across the top of this was the sign that said, "Progress...Why Ride Behind the Exhaust?"

Now, American industry, I think, saw that and they provided a way for man to get away from behind the exhaust so we move ahead.

Wednesday, May 3, 1967

CASE HISTORY: COMILLA PROJECT

SAMUEL M. JUSTICE: Welcome, gentlemen. We welcome back all the pros I see sitting out in the audience. Everybody is a pro here in his own right this afternoon.

My introduction to Comilla was not much more than an introduction. I was there long enough, probably, to find out just who the real pros were. We have two of them sitting up here this afternoon who will bring you their message. You will probably be hearing a lot about an individual named Akhter Hameed Khan who is, so to speak, the founder or the guiding light of Pakistan Rural Development. I heard a story there--I suppose everybody does when they first go--that made quite a deep impression. You know, this Academy is dedicated to the proposition that people should try to change other people. It is a very difficult thing in some parts of the world. So the story goes that some of the upper crust--I think they call them CSP's, the higher-level civil servants of Pakistan--one day came through a cafeteria line, something new to these Pakistanis. At least they started to go through and they said, "You mean we have to pick up our own food and take it over there ourselves and sit down? Well, to heck with this."

They just were not going to do it. So they went over and sat down and started sulking. They had never heard of anything like this. So Akhter Hameed sized up the situation. Of course, he was a noted, revered person. They all knew who he was. So he went over and personally selected food and carried the tray over and put it down in front of the men and said, "Now you can go ahead and eat. If you cannot get your food, I would be glad to get it for you."

The next day, they went through the line.

I have often wondered what the purpose is of these reports that we write when we go out on these missions. I have had a series of very bad experiences, going out and working very hard and writing up a report and hoping it would change something. Then you come along and have an Indian-Pakistani war and the Indonesian and the Dominican flare-ups, and I cannot find where any of these reports of mine have ever served any useful purpose. But I have finally found a use for it, because I am going to read something out of one of our reports this afternoon. But it is not something I wrote, it is just a few lines out of what Akhter Hameed Khan wrote about the Pakistan situation, because I think it will be of some help for us, some of us relatively inexperienced persons, to understand. These are just a few lines about what he said about the situation a few years ago.

Keep in mind that you have something between 55 and 60 million people in an area which approximates the size of the state of Arkansas in the United States.

> A majority of the members in most of the societies are illiterate. They are inured to isolation by reason of the annual flood and lack of village roads. They are accustomed to ineffective ways of making a living, whether farming on less than two acres by traditional methods, including the head and shoulder load haul, driving a rented cycle ricksha with leg and back muscles, or spinning by hand. They get along somehow on an annual per capita income of less than 250 rupees [about $50, at that time, in United States money], diets are often far from adequate, and food is in scarce supply. Illness is common and medical care, limited. The people are continuously adjusting to the weather, meteorological disturbances before and after the monsoon period, the heat and humidity, and then six months drought. No farming can be done without irrigation, which requires money and organization, which the people have not yet had.

It is at this last point I would like to stop. It is this particular thing, the organization and the utilization of the people to cope with these problems, that we hope will be stressed in this session.

I looked over the biographical sketches of our two speakers and it is rather like a Who's Who. We talked about it and they threw up their hands and said, "Let's not use very much of that, let's get on with the problem."

Mr. Edgar Schuler, from Michigan State University, came out of a village, and he was a dirt farmer, and he has had a lot of education, capped off by a Ph.D. at Harvard. And that is a pretty good balance In 1961, he went out to East Pakistan from Michigan State, under the Ford Foundation program, and was a senior adviser for the Pakistan Academy of Rural Development.

John R. Wilson is the Associate Director of the Agricultural and Rural Development Service in the Office of Technical Cooperation and Research in AID. He also was born and reared on a general livestock and crop farm, got his basic college work at Ohio State and his graduate work at Michigan State. He taught vocational agriculture, has had a lot of involvement in agricultural research and development, and in 1961 he went to Dacca, East Pakistan and became the head of the agricultural part of AID. He was there for about three and a half years.

I do not know two people who could qualify any better to open up this subject than our two people. So we will turn it over to you first, Mr. Schuler.

EDGAR A. SCHULER: At the beginning I wish to thank Edgar McVoy for inviting me to take part in this Symposium, and my good friend Arthur F. Raper for suggesting to him that I might be interested in pinch-hitting in this program, for I am. Furthermore, when I read Mr. McVoy's letter to the editor of the International Development Review, I was gratified to learn that he thinks formal schooling is not enough to meet the needs for rapid development in the countries which lack the necessities of life.[1] I could not agree with him more.

Nature of the Problem

When I received a copy of the Symposium agenda and began to outline the ground I wished to cover, I may have oversimplified, but here is what I put down:

1. Food production too little
2. Food production too uncertain

For most Americans I think it is almost impossible to get the full impact of the meaning of those words. We have so effectively solved the problems of adequacy and dependability of the means of survival that we cannot imagine what it is really like to have every year significant numbers of one's countrymen who, already undernourished, are in danger of death by starvation. The reason I am here today is that I have been so close to that kind of reality in Pakistan that I will never be able to forget it. As a result, I now want to do everything I can to help solve the problem there, and wherever else it exists.

But I must admit that I did not learn the full significance of large-scale famine until very recently. To explain how that understanding came about, I must go back to notes I took shortly before I completed my third and last year as Senior Adviser at the Pakistan Academy in Comilla. On Friday, July 20, 1962, the Academy received an official visit from the new Governor of East Pakistan, Mr. Ghulam Farouque. Early in the course of his tour around the campus, the Governor raised a question: "How far do you go back in your research? How far back have you gone? Twenty, thirty, fifty years?"

The Academy Director, whose name you should know if you do not, Akhter Hameed Khan, showed the Governor the Academy's publication, *VILLAGE DHANISHWAR--Three Generations of Man-Land Adjustment in an East Pakistan Village*, by S.A. Qadir, and replied, "Sixty years."

The Governor: "You must have found some big landmarks. The year 1947 [the year Pakistan was established by partition from India] is one."

The Director: "That is too recent."

Other landmarks mentioned were the permanent land settlement (1793), the Second World War, the 1943 famine, the Debt Settlement Act, and the abolition of the zamindari system. Then said Akhter Hameed, "The biggest landmark is the 1942-43 famine. Have you read the Bengal Famine Commission report? The stock of rice was taken away. The impact was so great! I can tell you from my personal experience."

This winter I decided to locate and read the report for myself. Through the courtesy of the Library of Congress, and with help from various good people, I was able to borrow the reports and learn about the great Bengal famine from official Indian documents. That record *can* give one insight. To me the most revealing statement of all, though the magnitude of the disaster was beyond anything I had expected, was the following by Sir Manilal Nanavati, one of the members of the Famine Inquiry Commission.

> In my opinion, a clear conflict of interest arose early in 1943 between Calcutta, where the maintenance of supplies, especially for the priority services and war industries, was a primary problem, and the rural areas where the lives of the poorer classes depended on the availability of supplies at reasonable prices. Inflation was raising prices, and the wages in the rural areas were not responding. The denial policy in rice, boats, and cycles enforced by the Government of India [parenthetically, I should say at that time Japanese invasion was feared], the evacuation of villages for military reasons (nearly 35,000 homesteads were affected), the floods, and the cyclone, and the failure of crops had already weakened the economy of rural Bengal. By the end of December 1942 distress had already appeared and by March 1943 widespread famine was anticipated by district officials [of whom Akhter Hameed Khan was one]. Consciously or unconsciously, the Bengal Government allowed the needs of the rural areas to be outweighted by those of Calcutta and particularly its big business interests......When distress appeared, there was a tendency, both on the part of the Government of India and of Bengal, to minimize the prevalence of famine, with the result that the efforts of the Government of India to secure external supplies were prejudiced even as late as August 1943 by the mistrust and suspicion occasioned by complaints about profiteering which prevailed in Bengal. This atmosphere of mistrust influenced the situation throughout the famine. In the end *not a single man died of starvation from the population of Greater Calcutta, while [the official estimate is that one and one-half] millions in rural areas starved and suffered.* (Emphasis added.)[2]

Having read and accepted this, there is no longer any mystery for me as to why the idealistic young Indian Civil Service officer, Akhter Hameed Khan, resigned from his position with the Government of India to begin experimenting with a new life which permitted him to identify more closely with the common people of India. The transcript of tape-recorded interviews in March 1961 permits a quotation from the Director at this point. It was, he stated,

> .....the biggest famine in the history of British administration, and one of the biggest, I would say, in the history of India....This is an interesting case of the breakdown of social organization and the trade channels. This famine of 1943 was triggered off, so to say, by partial failures of crops in some areas, but on the whole, it was a man-made famine, as was said by the political parties, I think, quite correctly. As an officer of the Government, I watched at least in two areas how true it was that the famine was a man-made famine. By that I do not mean that the British people were so cruel and callous that they intentionally wanted to kill the Bengalis. But what I mean by a man-made famine was that, on account of the war, there was so much dislocation and there was such disturbance in the old established systems and channels, etc., that the system got out of control.[3]

Though much has happened since then (the spring of 1961, and even more since 1942-44) the nature of the problem of East Pakistan remains essentially what it has been for many years. In Akhter Hameed Khan's own words, quoted by courtesy of Arthur Raper, "How can a substantial, permanent and reliable increase in the production of rice be obtained within the next few years?"[4]

Having thus stated the problem, let us now turn to the Academy at Comilla.

Nature of the Comilla Academy

When one tries to write a paper in a hurry--at least, when I do--it is very difficult to avoid extensive quotations. Now I shall quote briefly from an article which was published in the Academy's Journal, July 1962.

> The objectives of the Pakistan Academies for Village Development have been stated in various ways at different times and for different purposes, in the course of the six years since the Academies were first conceived by the then Prime Minister of Pakistan, Mr. Chaudhri Mohamad Ali. Probably no two participants in this developmental undertaking would formulate the crucial statement in identical terms.....What are the Academy's objectives, then, as understood by this writer? The ultimate objective of the Academy is to contribute significantly, commensurate with the various kinds of investment it represents, to the modernization of Pakistan. Through force of circumstances the effort is confined primarily to East Pakistan.[5]

The Comilla Academy, with its twin at Peshawar in West Pakistan, was the result of planning which began late in 1954. Now I will quote from my article on the Academies published in Rural Sociology:

> At the request of the Prime Minister of Pakistan and the Ford Foundation representative, a four-man team from Michigan State University was invited to visit Pakistan to study the needs of the country and to propose a plan for the creation of two institutions that would train government officers

> concerned with rural development. The final proposal, which included the training of supervisory and administrative personnel in the civil and other nation-building departments as well as supervisors and development officers of the V-AID [Village Agricultural and Industrial Development] organization, was adopted and implemented in June, 1957.
>
> The plan as finally adopted called for high-level training institutions emphasizing educational and research competence in the rural and applied aspects of sociology, social psychology, economics, anthropology, public administration, business management, and education. Two faculty members, a Survey and Research Specialist and Associate, were designated to strengthen the research operations. One faculty member was designated as Coordinator of Special Training (for short courses, workshops, and conferences) and Agricultural Extension Programs. Faculty members were expected to be of exceptionally high quality recruited from amongst those Pakistani nationals who have received advanced training equivalent to the Ph.D degree........
>
> The two Academy Directors and most of the ten faculty members for each Academy, drawn from Pakistani nationals throughout the world, were recruited by the spring of 1958. After some orientation to Village-AID and the Academy project, they were assembled on the Michigan State University campus for about one academic year of preparation--from June 1958 to April 1959--in accordance with the plans drawn up by the University's project staff members.[6]

Both Academies opened in the early fall of 1959, at which time M.S.U. was participating through four resident advisers: two at Peshawar, one chief of party at Rawalpindi, and myself at Comilla. Later I was joined by a second adviser, Henry W. Fairchild, some of whose writings are included in Academy publications.

The Program Employed

> The outstanding feature of the Comilla Academy's operations is the creation of a comprehensive and coordinated living demonstration of modernization within its life-sized human laboratory, the development area of Comilla Kotwali Thana. This *thana* is one of East Pakistan's 413 local units of governmental administration corresponding roughly to American counties. "Kotwali" identifies it as the headquarters *thana* of the District, of which the Province has seventeen.
>
> The Academy's social laboratory is a one-hundred square mile area with a rural population of 150,000 living in about 400 villages. By the end of 1963 over 150 local cooperative societies and one central service cooperative association had been organized and were functioning successfully in the area. The village cooperative societies have been the chief means by which the urgently needed improved methods of agriculture have been successfully introduced into the villages.[7]

Quoting again from the Academy *Journal*:

> .....the immediate objective of the Academy at Comilla may be formulated as follows: to modernize the economy, local government and educational system--and thus gradually the whole of society--within one small administrative unit of Pakistan, the Kotwali Thana of Comilla

District in the Chittagong Division of East Pakistan. At the time of this writing [1961] the concept of a possible pattern of mutual enhancement among the three key modernizing institutions--the cooperative societies, the agencies of local government, and the educational institutions--has become clear and generally understood within the Academy. This concept has emerged, however, from a variety of experimental efforts to find successful methods of development. The assumption has been that the successful demonstration of a living, functioning system of modernized institutions, within the context of East Pakistan, would in the long run provide not only the best training and training materials for Government officers and the most useful raw materials for relevant social science research, but the only convincing evidence that the Academy had mastered the subject matter of its special province: a functional understanding of the process of development itself.

Capitalizing on the villagers' profound and pervasive dissatisfaction with their present intolerable and worsening conditions of life, accordingly, the Academy began its intended programme of comprehensive modernization improvements in agricultural technology; introduction of the power water pump for winter paddy crop irrigation; introduction of the tractor and modern cultivation equipment to supplement or replace the bullock and the inefficient traditional type plow; introduction of soil-testing and application of suitable chemical fertilizers; use of improved and tested paddy seeds, etc. These are the most obvious, objective and demonstrably superior aspects of the modernizing process.

But in order to introduce modern agricultural technology, given the very small and scattered land holdings and meager resources of the East Pakistani villager, it was necessary at the same time to introduce changes in the social and economic institutions of the village. Tractors and power water pumps can be used efficiently and economically only when the scope of the operation is larger than the single farm of average size--say about two acres. Thus the organization of village co-operative societies became essential to the adoption of improved agricultural technology.

But socio-economic organization within the village covers too limited an area to assure proper flood control or a controlled water supply sufficient to fully irrigate winter crops. Hence solution of these technological problems requires effective work with and through the Union Councils and the Thana Council as well.

At the same time the Academy is attempting to discover improved ways to utilize the resources represented by the thana-level officers of the government departments, such as agriculture, animal husbandry, fisheries and co-operatives, and the representatives of the general public elected to the Union Councils.

The third area in which modernization must take place, if the energy stored in the tradition-bound under-developed societies is to be released in an explosion of modernizing energy, is the educational system as a whole. The Academy is just now beginning an intensive programme of experimentation in this area. It should be noted, however, that with the beginning of this phase of the Academy's "extension" activities it will become possible for the first time to undertake experimentally to strengthen the modernizing effectiveness of each of the three basic institutions by means of the other two: the co-operatives, local government, and the schools.

The revolutionary aspect of this intentional societal change consists in the possibility that it may result in a new distribution of power--economic, educational, organizational and ultimately, political--that is, a shift in the centre of power from the classes to the masses of Pakistan. If this result should emerge, say within the next generation, it may be perceived as only one small localized and temporary manifestation of the democratising revolution whose historical roots go deep into the religious and secular ideological movements of Asia and Europe, whose major visible and dramatic turning points may be identified as the American, the French, the Russian, and the Chinese revolutions.

Viewed on such a broad canvas, the Comilla Academy and its human laboratory of 150,000 rural people is microscopic indeed. But the importance of an idea is measured by its results, not by the numbers who initially acclaim it. And the big idea which gives the central dynamic impulse to the Academy's evolving effort is that through sustained, systematic and intelligent effort the outmoded institutions of this ancient and complex society may be speedily and peacefully transformed into an institutional system appropriate to Pakistan in the world of today. This audacious and formidable undertaking would be overwhelming and unreasonable were it not so sharply restricted in scope, that is, in the number of people potentially involved at the outset.

The immediate purpose of the Comilla Academy, then, may be said to be the achievement of a successfully functioning small-scale model of modernized and democratized South Asian society. Its reproduction or expansion might or might not be undertaken by the Academy itself, but the model must in any case come first. This model is to be evolved through bold and imaginative improvisation, utilizing all available resources of modern applied science and technology, and founded securely on the basic values of this Islamic society. This method is to be moral, educational, and gradualistic.

It appears that the conception and achievement of the Comilla model has drawn for inspiration and example upon such leaders in the world-wide co-operative movement as Bishop Grundtvig of Denmark and Friedrich W. Raiffeisen of Germany, and the St. Francis Xavier University at Antigonish in Nova Scotia.

A prediction:

The experience of creating a functioning societal model provides rich opportunities for carrying out various types of social science research such as are essential to gaining a rational understanding of why, in part, the model may have functioned successfully and why, in part, it may also have failed, with obvious implications for Government developmental policies and programmes. From this research, enriched by a study of the relevant experience in Europe, India, and elsewhere, it should be possible to produce the teaching staff and the teaching and training materials required for carrying out the Academy's province-wide educational functions. In due time, in fact, the Academy may well emerge as the prototype as a Pakistani version of the American Land-Grant College system. Should this development actually take place it seems not too

> ambitious to anticipate that the Academy will succeed in attaining its goal: to contribute significantly to the modernization of Pakistan.[8]

But what I have just read is already ancient history. I would be very remiss, accordingly, if at this point I failed to quote from an article by Edgar Owens in the current issue of International Development Review entitled, "The Local Development Program of East Pakistan." Says Owens, "It is possible that an agricultural revolution is underway in East Pakistan. But the program is too new to be certain yet that this is happening, even though there is considerable evidence of progress." With this cautious statement I fully agree. Quoting Owens further:

> East Pakistan began transforming its local governments into modern development institutions in the fall of 1962 through what is known locally as the "Works Programme Through Basic Democracies." Two of the stated purposes of the Works Program are to employ large numbers of landless agricultural laborers who are normally without work and go hungry during the winter dry season, and to begin construction of badly needed farm-to-market roads and a variety of land improvement projects.
>
> But the over-riding purpose of the program is the development of local self-governing instituitons capable of solving the variety of local development problems.[9]

According to Owens this program of rural works [which was organized by East Pakistan's Department of Basic Democracies and Local Government on the basis of the model, and with the training, provided by the Comilla Academy and its cooperating villager-partners-in-modernization] built some 75,000 miles of rural roads in the course of the first three years of its existence. This accomplishment, he says, is

> .....possibly more than the rest of the underdeveloped countries together, excepting Communist China, at an average cost of $610 per mile.....The officials who are administering the program believe it is best to involve people at levels of technology which people direct and control. They consider it best to implant the idea of evolutionary progress through accumulated investment and hard work in these democratic political institutions in the hope that the people will come to cherish their new political voice and influence as much as the fruits of economic progress.....The officials cite this statement of one villager's reaction to the first opportunity for self-improvement and self-expression he had ever known: "We needed roads, but we did not even dream we could get them. Now we are building them ourselves!"[10]

This system, which I had the privilege of witnessing during the winter of 1961-62 in its embryonic stages of development, makes use of the thana for purposes of planning and coordination, and of the union (which Owens equates with township) for purposes of generating specific local project proposals and the operations to convert them into reality. As he well puts it,

> County planning and coordination are based on the proposals of the townships which in turn stem from discussion in the village, at the teahouse, under the trees--wherever the villagers or the urban poor get together. The purpose is to weave the ideas and specific project proposals of the local people into a county system, such as a road network, or a county-wide program, such as agricultural development.....
>
> This use of the county as an educational institution is just beginning, but it appears to be an effective way to begin the process of disseminating elementary technical information to large numbers of people who

are woefully ignorant in every field of modern technology. The subjects include literacy, health, education and nutrition, maternal and child care, household management, consumer purchasing, and family planning. These are in addition to the program in agriculture and public works. These extension programs are intended, in part, to begin to teach the people that development is all-pervasive, a way of life that affects all members of the family and gradually will influence nearly all the ordinary activities of people. It is not enough to modernize just the breadwinning function of the father. The family itself must become modern in all respects.

Work is carried out at the township level through an elaborate system of committees and sub-committees.....the object is to involve as many people as possible in development by creating literally thousands of new leadership positions for people who have not had the opportunity to try to lead. The local committees are responsible for scheduling and organizing the work and the labor force and for maintaining a complete and accurate record which must be available for inspection at the township office.....

The several persons who are administering the program in East Pakistan say their long-run objective is a transformation of an essentially feudalistic, closed society into a free and open society with a democratic government.....

The all-important political result is that local candidates are being judged as potential development leaders.....The election results seem to suggest that the voters have been persuaded that development is possible in their lives now, and that they judge development to be the over-riding political issue of their communities.....

At the national level most observers interpret the Presidential election of 1964 as evidence that people associate the local development program with President Ayub, who initiated the Basic Democracies in 1960.

On the other hand, most of the candidates for the National and Provincial Assemblies were traditional style politicians. Only a few of them seem to understand and support the local development program.....

The all-important social effect is the reorganization of the village or the sub-group in the cities, in favor of development. The reorganization seems to start happening spontaneously as a natural, though indirect, result of development activities. Those who participate in development gradually become the dominant group, often before they become the majority. Those who do not participate are encouraged to join or simply are ignored, but they are not opposed with the petty vindictiveness that characterizes the traditional factional disputes. Gradually trust replaces suspicion and the local people begin to work together and with others from the same townships or county as they realize that all can benefit from a common effort.....Small landlords are being turned into local government planners and administrators, moneylenders into accountants, and religious leaders into committeemen and school teachers. The local people seem to be willing to accept the continued leadership of the traditional leaders if they are persuaded their interest in development is sincere. They also know they can now vote them out of office every five years.[11]

This kind of development, says Owens, is of particular importance because it suggests that the desperately poor people of East Pakistan will choose to try to achieve modernization through the peaceful means of training and education rather than "the kind of violent class conflict which the communists are confident will bring them to power. Like the British a century ago, perhaps the Bengalis will prefer to endure social injustices, while striving to ameliorate or abolish them through their new and democratic political institutions, rather than destroy their institutions in the illusion that revolution is a universal panacea for profound social discontent. This, at least, is the theory of the program." [12]

Having quoted so extensively from Owens' dramatic report on the "Local Development Program," in evaluating I must be more brief. The fruits of the Comilla Academy's operations I believe to be good, and their seeds appear to be taking root throughout East Pakistan. But the parable of the sower is still applicable, for the seed does not germinate everywhere. A long time is required for its growth to maturity and reproduction, and in some ways, it cannot be hurried at all. Still it strikes me as more fruitful than most. If this judgment suggests a favorable bias on my part it may be because that bias is there, inescapable and undeniable. But I would claim to be rendering only a progress report, an impression of movement in the right direction. How fundamental and persistent the changes which are observable today will ultimately prove to be are questions which must be left for the future.

Reasons for Success and Failure

If we can agree that the Comilla Academy has demonstrated a degree of success in initiating planned rural development which is significant, the big question becomes: Why? Do we know which factors have caused whatever success has been achieved? This I do not claim to be able to do, but I will give you some tentative suggestions which impress me as worth your consideration.

First, is the fact that during the initial period of the Academy's functioning, Pakistan was experiencing domestic peace and stability, conditions essential to effective development, hence a very great boon, even though some would claim that the cost--the Martial Law regime of President Ayub Khan--was excessive.[13]

Second, the Government of Pakistan gave its fullest support to the Academy from the beginning. The Academy's scheme was in effect a creation of the Government of Pakistan with assistance from the Ford Foundation, International Cooperation Administration (ICA), and AID of the United States Government, and from Michigan State University. In other words, it seems to me the Comilla Academy never suffered a lack of support or resources.

Third, the Academy was given time to prepare itself to do the job for which it was created. Not that time was thought to be endless. But almost two full years elapsed between the signing of the agreements and the formal opening for the business of training Pakistan's government officers by the Academy at Comilla.

Fourth, the crucial role of Academy leadership was given to a man who has an abundance of exceptional qualifications. Some of these which I consider important would include the following: he is a man of integrity and courage, he has the wisdom and realism to avoid tilting at windmills; deeply learned in Islamic history and philosophy, he is equally knowledgeable in the fields of learning relevant to modernization; trained for a career in the Indian Civil Service, because of the Bengal famine he came to consider ".....himself to be a leech and was very upset.....[so he set] out to experiment with his own life on the lines of Tolstoy and other mystics." He resigned from the I.C.S. ".....and started his life as a farmer with a goat and a she buffalo.....but the scheme did not work well, and he had to shift from the life of a farmer to the life of an artisan, and took up lock-making with his own hands."[14]

A man of very superior ability and of great skill as both educator and administrator, he is very modest and unassuming except when a more positive posture is needed. Though he has repeatedly said, "What we have done in Comilla is nothing original; rather, we have made a series of simple adaptations and synthesized certain ideas which are very commonly talked about,"[15] I had attributed this kind of statement to his excessive modesty; but recently, when reading *The (India) Famine Inquiry Commission--Final Report* (Delhi: Manager of Publications, Government of India, 1945) I ran into confirmation of this claim. Part IV of that report, on "Improvement of Agricultural Economy," in Chapter III, on "Rural Development Organizations," quotes the questions on this subject which the Commission put to the Provincial Governments, and admits the replies showed ".....a general belief that, while the line of advance must be through a great extension of cooperation, the present forms of cooperative organization do not fulfill the purpose in view and that the best methods of applying the principles of cooperation to the problems of the small farmer still remain to be worked out."[16] The conclusion of the Commission was

> .....that "cooperative farming" must of necessity involve multi-purpose cooperation; that the difficulties.....can be overcome by a suitable type of cooperative organization adapted to the requirements of the small and medium farmer; and that an essential feature of this type of organization is the federation of multi-purpose village societies, organized on the basis of unlimited liability, into multi-purpose cooperative unions constituted on the basis of limited liability.[17]

To me this sounds almost like a charter for the Academy's new system of cooperatives in Comilla Thana.[18] I stress the matter of the cooperatives since they are basic to the Comilla approach to modernization.

Fifth, here are some principles which I think have characterized the Academy's operations from the beginning:

(a) Begin small, in order to understand thoroughly through continuing intimate contact.

(b) Start where the chances for success are greatest and the likelihood of failure is minimal. For example, the village cooperatives were begun with middle-level villagers, neither the rich nor the poor, but those typical of the hard-working, God-fearing majority, mutually known and trusted because of good character, ability, and industry;

(c) Make extensive use of feedback to provide a factual basis for modifications in policies, procedures, and administration designed to improve operations.

(d) Insist on self-help, self-denial, regular collection of small savings as the means to repayment of loans, establishment of credit worthiness, and to the creation of capital.

(e) Discover and develop new village leadership resources through continuing programs of weekly training and education by competent people;

(f) Organize and strengthen the village cooperative as a nucleus of group modernization within the village, since working with villagers as individuals is unrealistic.

(g) Finally, continuous creative experimentation is the foundation of the Academy's operations. When a new project shows evidence of viability it becomes the beginning of a pilot project, and this in turn can mature into a small-scale model or demonstration. Full documentation provides the record, and also the material for training the government officers required as teachers and administrators to expand the scale, as in the case of the Rural Public Works Program, to a province-wide operation. At that level, as tested and proven policy and program it may contribute to the general theory and practice of development.

FOOTNOTES

[1] Vol. IX, No. 1 (March 1967), inside front cover and p. 1.

[2] Famine Inquiry Commission Report on Bengal (Calcutta: Government of India, 1945), pp. 101-102.

[3] Interviews conducted and edited by Frederic C. Shorter, Princeton University, at Comilla, East Pakistan. This quotation is from p. 11 of a 15-page mimeographed transcription.

[4] From the second of two statements by the Director supplied to Arthur F. Raper in the course of his recent visit to Comilla for the purpose of updating his forthcoming book on the Academy. The first paper, November 29, 1966, is titled (by Dr. Raper) "Suggestions for Increasing Agricultural Production in East Pakistan. Part 1, Background Considerations," and the second, from which this sentence is quoted, December 14, 1966, he has headed, "Part 2, Suggested Procedures," p. 1.

[5] Edgar A. Schuler, "Role of Pakistan Academy for Village Development, Comilla," Journal of the Pakistan Academy for Village Development, Vol. III, No. 1, p. 28.

[6] Edgar A. Schuler, "The Origin and Nature of the Pakistan Academies for Village Development," Rural Sociology, Vol. 29, No. 3 (Sept. 1964), pp. 305-306.

[7] Ibid., pp. 307-308.

[8] Schuler, Journal of the Pakistan Academy for Village Development, op.cit., pp. 29-31.

[9] Edgar Owens, "The Local Development Program of East Pakistan," International Development Review, Vol. IX, No. 1 (March 1967), p. 27.

[10] Ibid.

[11] Ibid., pp. 28-29.

[12] Ibid., pp. 29-30. For a brief treatment of the contributions of both the Comilla Academy and the U.S. AID Program Building Concept of Agriculture Extension under the leadership of Ben Ferguson, see Chapter 10, "Basic Democracies and Development in the Rural Sector," in Khalid B. Sayeed, The Political System of Pakistan, (Boston: Houghton Mifflin Co., 1967), pp. 258-259.

[13] See Public Opinion and Constitution Making in Pakistan 1958-1962, by Edgar A. Schuler and Kathryn R. Schuler, (East Lansing, Michigan: Michigan State University Press, 1967), pp. 214-215.

[14] Akhter Hamid Khan, "My Brother Akhter Hameed Khan," The Pakistan Observer, July 20 and 27, 1958.

[15] Akhter Hameed Khan, "On Principles of Rural Development," a speech given at Michigan State University on June 11, 1964, in Rural Development in East Pakistan, Speeches of Akhter Hameed Khan (East Lansing, Michigan: Asian Studies Center, n.d.), p. 9.

[16] Famine Inquiry Commission--Final Report, (Delhi: Manager of Publications, Government of India, 1945), pp. 314-315.

[17] Ibid., p. 320.

[18] See the Annual Reports published by the Academy beginning in 1961 under the title A New Rural Cooperative System for Comilla Thana; authorship varies.

JOHN R. WILSON, Agency for International Development: Mr. Chairman, during the three years that I was in Pakistan--or three and a half years--I had an opportunity to look at the Academy from a little different point of view than did the people who were involved in it, as my friend Edgar, here, has been. I looked at it as an overall development program. There are several people in the room that I have had arguments with at one time or another on what the Academy was and what it was supposed to do and how it was going to do it. And for about three years, I was sort of an advisor to the board of directors and met with them at their regular monthly meetings. So during that time, I was pretty well up to date on what happened. But unfortunately, since 1964 I have not kept too close track of what has transpired, except as people coming through have made reports on them.

I do not think you can quite understand the Comilla Academy unless you know a little bit about the background of what was there at the time the Academy started. A number of programs had been tried, and for the most part, they were not what one would call rousing successes. As Dr. Akhter Hameed Khan has written repeatedly, the villages were in a very bad state of demoralization. Things were about as bad as they could possibly get.

In briefings and orientations that we used to make in East Pakistan, I pointed out to our visitors that East Pakistan had almost exactly the same number of square miles as the State of Michigan, but it has twice as many farmers as there are in the whole United States. Actually, it is a little greater proportion than that. Now, if you would take the whole province of East Pakistan and draw lines across it, as on a checkerboard, and if you had made those lines 135 feet apart and had gone in there at the very driest season of the year, in March and April, you could have had a man, woman, or child to stand on every intersection of those lines. If those same people had stood there until the next September, you would not have been able to see a third of them. They would have been completely underwater and half of those remaining would be in water up to their knees.

Now, that is the kind of situation that these people were farming in, working in, on farms of about two acres or a little less, subject to flood and all the rest of the hazards of life in that part of the world.

I had a Texan as an agricultural extension man working for me there for a while. I asked him one day, "Bob, if you wanted to influence the production on 20,000 acres in Texas, how many farmers would you have to contact?"

He said, "Well, I had three farmers in my county, each of whom had more than 30,000 acres."

Now, in the district in which he was located, which is Comilla District, in order to influence the production on 30,000 acres of agricultural land, 42,000 people had to make up their minds to change something. That gives you some kind of an idea of the comparison of the kind of training job that faces the government of Texas, for example, as compared with the government of East Pakistan. One man as compared to 42,000. So that was the situation that faced Comilla.

They had this large number of people, about 80 percent of whom could not read or write in any language. They had a large number of local dialects. While these dialects were all called Bengali, they were not at all the Bengali that the proper Bengali spoke. They had a lack of trainers. They had a lack of knowledge of many of the skills that are required. There was a lack of permanency of personnel. Government servants, if they proved to be good ones in one job, were rapidly moved to another job where there was an emergency developing.

There was also a supreme dependence on the government by the villagers, and at the same time, a horrible fear of the government. The government was a source of good and bad. If they had not been such devout Muslims, you might also have concluded that the villager regarded the government as almost standing in place of God. So the government was to be feared, and at the same time, that was where the supplications were to be made for help. All of this led to a complete demoralization, because the bad things were apparent, but the good things went unnoticed.

As the Academy developed in East Pakistan, as they started their research program, started training the circle officers, the thana officers, and all the rest of them, it soon became apparent to Akhter Hameed Khan and people like our friend Edgar and others who were working with him, that one of the big problems that existed in East Pakistan was the tremendously high wall that existed between various governmental departments. If I am in agriculture, I do my job in agriculture without any regard to the irrigation people, without any regard to the public works department which is going to have to build the roads and things of that kind. As a result, we found that there were literally hundreds of projects starting, all as little independent kingdoms unto themselves, with no coordination between them. So one of the first things that happened was to begin training officers from various departments, all in common groups.

Paul Schuler back here would have some people from labor. We would have some people from agriculture. The basic democracies in local government would have some people, and so on, so that there would be a wide variety of people in these training courses so they could become acquainted with each other, as well as being trained in good management.

Then, most of all there was a lack of skills and technology that were needed for any kind of a development. While there was a director of agriculture and a secretary of agriculture, that did not necessarily mean that they were agriculturalists. The director of labor, for example, was not necessarily a labor man. On the other hand, he might at the same time hold the job of being the president of a labor union. The director of cooperatives was the judge, jury, and legislature for cooperatives. At one and the same time, he was the man who issued the regulations, he was the man who enforced the regulations, he was the man who put out the penalties, and he was the president of all the locals in the country. So the power and authority were all tied up in a tightly-knit central hierarchy, without a falling away into the lower regions as far as the decisionmaking processes were concerned.

And as I have looked at this Academy and what it has done, one of the most useful things it has accomplished is that it has tended to help move the decisionmaking process, with all it implies--the planning, the organizing of resources, the evaluation and so forth---down to lower levels.

I think that the rural works program is an excellent example of that. Prior to the coming of the Academy and the rural works program, all decisions made in regard to roads in East Pakistan were made at either the provincial or the central government level.

Now, the bulk of the decisions are made in the local unions at the village level, the decisions as to where roads will go, what kinds of roads they will be, who is going to build them, and things of that kind. It has helped to involve these local people in the decisionmaking process right at the grassroots. And as Ted Owens comments in the article that was referred to, this has been a very significant factor in developing a system of democracy in the country, in getting these people to be on a par with their government, to work with their government instead of either standing there with their hand out, asking for help, or with their hand out begging for mercy. They started to become a partner.

Now, the same thing is beginning to happen in many other aspects of the whole problem, changes are being made because of the research that has been done. They know now how to go about doing some of the jobs that are required in development. They have found out, for example, that if you are going to put on a demonstration, one of the primary requisites is that the farmer himself has to put those demonstrations on, and that in order for him to do a good job, he has to have the support of the rest of the villagers. Otherwise, he is going to be a little bit afraid of showing something different.

I think they have found out something else that is very significant. That is that as far as these local people are concerned, because of the conditions under which they have lived for so many generations, because of the present situation in their government or whatever the reason might be, they fail to trust anything that they cannot see. In order for village organization to be effective, all operations have to be out on top of the table where they can be seen. It does not make any difference whether it is deciding that Akhter Hameed is going to go to town to try to see the commissioner about help on a ditch or whether it is paying some contractor 10,000 rupees to build a culvert. All of those operations have to be reported, they all have to be done in open meetings. I think that that has contributed a lot to the involvement of the local people in their own development.

Now, Comilla's functions have been listed variously as being tied in with research with training, with development, and with the expansion of Comilla ideas to other parts of East Pakistan. Some of the projects have been quite successful; others have been less so. And you could describe the reasons for the successes in the same way that Ed Schuler did. They had a certain degree of peace and stability, they had the resources, time to prepare, and things of that kind.

Then you might say, well, why did some of them fail? I think you can almost say without exception that the reasons for failure were the converse of the reasons for success. There was not unanimity of opinion as to some of these projects, they did not have the necessary resources, they did not have the time to prepare properly, and the people who were leading it did not have the necessary leadership qualifications.

Which brings me to the point that for all of this work to expand from the Academy through the pilot projects, to the fartherest part of East Pakistan is going to require a tremendous amount of training at all levels. I do not know if it would be possible to figure out how much training it would take, but in 1964, when Akhter Hameed Khan came to the United States to attend the seminar up at MIT, he spent some time out in Michigan State and we had occasion to visit several times. We figured out one evening that if all of the unions and thanas in East Pakistan were to be staffed at the same level as Comilla thana was staffed, leaving out the Academy, and if East Pakistan would double the training that it proposed in its projections for the fourth, fifth, and successive five-year plans, that it would take 40 years to staff that one province and they do not have 40 years. So some alternative methods have to be found. I am convinced that this business of developing the local leadership to tackle the projects and letting them go from that on to the bigger ideas is the only way it is ever going to be done. That is the only thing we have that can substitute for the great amount of training that is going to be required if we expect governments to do all of the development work themselves.

DISCUSSION:

MR. JUSTICE: I express appreciation to both of our speakers. We will turn it over to the audience now to ask embarrassing questions.

MR. FRANKEL: You were projecting the time it would take to produce the leadership and saying that putting them through the leadership training they would get at Comilla would be an impossible process. Does not this leadership development have a multiplier effect? Do you not find that some of the experiences of neighboring villages are taking hold and you are developing leadership without formal training?

MR. WILSON: That was the reason for my comment, that without this local development, without the small projects where they can develop their own leadership, we are going to have to get by without much of the training that is otherwise going to be required. Road building is a rather complicated business, for example. But with these people starting out with paths that were only four or five feet wide and getting them built up during one summer, and then discovering when the floods come next summer, that they are still a foot and a half or two feet under water and that they are not wide enough to get a bullock cart along, they learn. And that is a very effective method of learning. All you have to do is have a bullock and his cart slide off one of those roads and you have a very effective man arguing for wider roads. Or you just have to have one man's baby die because the doctor could not get there because his jeep could not run on the road. Then you have another convert to the business. This is much more effective than somebody from the Public Works Department going out there and telling them, "You have to have these roads eight feet wide."

I would agree with you that this learning by doing is a very effective teacher, particularly when they have their own resources invested in them.

MR. JUSTICE: Anybody else?

PAUL SCHULER, AID: John, why not tell the little story about the ricksha drivers in Comilla, the little co-op? I think that is a good example of how this self-education goes on.

MR. WILSON: You were the grand-daddy of that, Paul, tell them.

MR. SCHULER: I will just do it quickly. This was a very interesting experiment. Akhter Hameed Khan found out that the ricksha drivers in Comilla were paying two rupees a day for the ricksha and some days, they did not even earn two rupees. He said, we will have to do something about this. We will get together and put in a little money each day, and eventually we will have enough to buy some rickshas. Their original objective was to buy one ricksha and see how it worked out. Within one year, ten ricksha runners owned their own ricksha and were getting the income from them. Less than a year and a half later, they invested jointly in a truck which was used to haul rice to market, for which they got paid by the farmers. Sometime after that, they opened up a small garage, where they repaired various kinds of equipment, including trucks and cars.

This was one of the things John is talking about. They learned a whole lot by that.

MR. JUSTICE: Most of us know Paul. He was over there as head of the labor program, and for a while he was the provincial director.

MR. JUSTICE: One other question.

ROBERT FOWLER, AID: You talked about the coordination at the village level. How high up in the government structure did this coordination go? When you get up to the ministry or whatever you have in East Pakistan, do the committees and these various groups that get together operate on this level or is it simply a low-level operation? We have that problem in so many of our Far Eastern countries, I am just curious to know.

MR. WILSON: Over the course of the years, there has been developed a sort of junior cabinet in East Pakistan that has been more or less forced on them by the organization at the lower levels. Now, by law in East Pakistan, there are in every union, Agricultural Development Councils, which are made up by farmers and the political leaders or the union council members. These councils were started at the union level, then organized at the thana level. Then sort of simultaneously, they were organized at the district and divisional level and then carried on up to the state, so that at the time that I left there, they had sort of an unofficial organization at the very top level, and the secretaries in the various cabinet divisions did meet to discuss the various problems that were brought in through these development councils, and there was quite a wide variety of problems brought into this thing. It might be anything from an argument about whether a levee along a river for flood protection should be built up right close to the river, which might throw it over to another union, or whether it should be back a way; what could be done about getting fertilizer into an area; what could be done about making sure that the agricultural assistance out in the boon-docks really worked, or whether they were teaching school for extra pay, or what they were doing.

I think it has developed to the place now where there are regular meetings at all levels of government dealing with this problem of interagency coordination. I think that they are probably about 20 years ahead of us on that score.

MR. REYNOLDS: I would like to be considered as among the fans with very deep respect for the Comilla Project. I also am rather deeply committed to objectives in our new foreign assistance legislation which directs AID to devote itself to methods to involve masses of the people in the countries.

The question I would like to raise is what Mr. Schuler or Mr. Wilson would have to say about the possibilities of extending the Comilla kind of activity, in toto or in principle, into broader areas rather rapidly.

A companion question, then, is how they feel about what is going on through the kind of program that Mr. Ferguson has been identified with, as it may reflect a diffuse kind of program which may be spread rapidly.

My final point, then, would be what principles--maybe I missed this when I was out a while ago--are transferable in the Comilla or the companion program in the rest of East Pakistan?

Is that sufficiently complex?

EDGAR SCHULER: That is quite a mouthful. I wish John Wilson would talk to the point of the relationship between Ferguson's approach and the approach at the Academy, because I think this developed after I left.

Would you care to speak of that?

MR. WILSON: I have heard a lot of people argue about the Ben Ferguson approach and the Comilla approach. As far as I am concerned, there is no difference. It is just a matter of degree. Comilla is aiming at the definition of principles and then trying them out in pilot areas. Ben Ferguson is going out with what is known and trying to make something work.

Now, they use a lot of the same principles, and as soon as something was found out in the Comilla Academy approach, it was immediately accepted into what Ben called "program building." And there was a great deal of communication between Ben and Ahkter Hameed Khan.

If Ed does not mind, I am going to take the extension of Comilla and let him follow up.

It depends on what you mean by extension of Comilla. If you mean taking the procedures that they work out and things of that kind, they may or may not be transferable. In East Pakistan, they had a completely leaderless situation as far as the village was concerned and so they could go in there with all of the peasants in the village at essentially the same level. There was no one in the village who had a vested interest to protect. And as a result, there was a freer interchange of ideas between the villagers and there was a quicker acceptance of ideas among the villagers than I think you would ever be able to get in West Pakistan. I worked in West Pakistan for a time before I went to East Pakistan as an agronomist. I was trying to get people to raise hybrid corn. I had any number of landlords tell me, "Mr. Wilson, that hybrid corn is real good, but it should be confined only to the land owners, because if you give it to everybody, then there is going to be too much corn." You just did not have that to compete with in East Pakistan.

When they began putting the rural works program into West Pakistan, it was organized completely differently, again because of the vested interests of the large landlords and the politicians and other groups that were still powerful at that time.

The point I was going to make, though, is that the principles of Comilla are applicable. Go in and do the research, develop your ideas, and then try them. The only complaint I have about Comilla is they started 20 years too late.

MR. REYNOLDS: I think that is a beautiful analysis of the relationship between the Comilla and what Ben Ferguson is doing and I have heard it interpreted in different terms on other occasions. It always seemed to me that is what the relationship was.

On this question of principles, we sat Niehoff and Ted Ferguson and Mr. Owens around the table and asked them what the principles were and they listed to about 10 points. They might have refined them if they had 20 minutes more. I do not mean this was a complete scholarly analysis. But there were certain points they mentioned in broad outline which seem to me to be universal. They mentioned the favorable political agricultural climate established by the government; they mentioned the pressing relationships of family, village, and so on up the line. They mentioned the simple practices; they mentioned the tie-in with t' local governmental organization. And if that seems self-evident, I have been in other very similar situations where people in agricultural development are just shocked at the idea that you have any relationship with governors and so on. So in general terms, it seems to me you could establish these principles.

MR. JUSTICE: Any further comment on Mr. Reynold's statement?

MR. EDGAR SCHULER: I will say amen to that.

MR. VINOGRADOFF, Department of Labor: Ben told me that the basic difference between his approach and the Comilla approach was that he had no tax money, no money to hand out, no money to train people, no money to use in the program. He would go into a village. He would try to get the people around a table, and first ask them what were their problems. That was always meeting number one. Then he would try to get subcommittees going to do the road, do the dam, do the ditch or whatever the particular problem was--without tax money to pay them. Now, Ben is a good salesman, I realize that. And this may not be exactly right, but that was his essential difference from Comilla. He went in on his own and got them to do things at the grassroots, while Comilla-trained people, using tax monies, sent them back down to the villages, from above.

Now, does anybody want to challenge this?

MR. EDGAR SCHULER: I would.

MR. VINOGRADOFF: I might say Ben did a job on me for a day and a half, and maybe it shows.

MR. WILSON: Ben is an effective salesman, no question about that. But he was hardly right when he said they had no tax money, because after all, he did have the structure of the Agriculture Department and the money that was coming for the irrigation ditches and things of that kind through the Public Works Program. So there was money, public money, involved. I think what Ben was getting at, was that he did not have the superstructure that was brought in to replace the old line departments. In his program, he was trying to make use of what was already on the ground. In the Comilla approach, and Ed can correct me if I am wrong,they pulled out the union agricultural assistants and took them into a central headquarters, for example, and began using model farmers. But there was the superimposing of a different kind of organizational structure. There was an organizational structure there to help Ben, too. But it was the old line one.

MR. JUSTICE: There just might have been one other difference. I doubt if anybody in Comilla could drink as much tea as Ben could, either.

Any other questions?

MR. EDGAR SCHULER: It seems to me that Ahkter Hameed Khan's basic idea was that given a situation in which the bulk of the population is illiterate, where the problems are really desperate, then you try to move things fast. The most efficient way is to take the existing structure of the government personnel and try to give them a better understanding of what can be done and to motivate them to go out and work in a way they never had done before; that is, with the local rural people. This was really the key, it seems to me, that he was hoping to be able to use to unlock the human resources, of which they have an oversupply in East Pakistan and some other places. But the idea was simply that Comilla would attempt to find patterns of organization and operation based on a very thorough, realistic understanding of what the situation was. Then this pattern, if it was sufficiently attractive to the existing government departments, would be multiplied through the structure of the technical and administrative personnel. This is the way he hoped it would be possible to accelerate the process.

MR. JUSTICE: Harold Davey, Department of Labor.

MR. DAVEY: I would like to stress one aspect of the relation between manpower and agricultural production--the other side of the coin of unemployment.

Now, we have all heard about the rural affairs public works program that Comilla spearheaded in East Pakistan. Coming back to what Mr. Waters said earlier about one of the five principal ways in which manpower is involved in the War on Hunger, he emphasized the rapidly growing unemployment in the same areas that are faced with the shortage of food. But in this public works program in East Pakistan, in addition to providing work for large numbers of unskilled rural people, it also provided public works which had an impact, as I understand it, on the agricultural production. That is what I would like to ask Mr. Schuler and Mr. Wilson. I heard one report which said the dams that were built to control the water made it possible in some areas to get two rice crops instead of one, because it controlled irregular water flows and also, that the little roads that were built on top of the dams made it possible to provide transportation to market and an incentive for the person who is raising the rice. So here is a way in which, perhaps, we can show by statistics or evidence how much the agricultural production in the Comilla area or in East Pakistan has risen that might be traceable to these public works programs; in other words, the positive aspects of creating jobs also has a direct impact on the food production.

MR. WILSON: During the course of discussions that went on in this rural works program, Paul Schuler, Ted Owens, and I were all involved in the early discussions as to what kind of projects would be taken when the project was expanded to the province as a whole. Fortunately, the man who was in charge of the Basic Democracies in Local Government Department was in agreement with us that in the early stages at least, the projects were going to have to concentrate their attention on things that contributed to production to the greatest possible extent. If a road was to be built and there was a possibility of incorporating in that road flood protection possibilities and things of that kind, they had to be incorporated.

When Ed went to Comilla, I doubt very seriously if you would require the fingers on both hands and your toes to count all the bicycle rickshas in that community. If you were to go back there today, you would find literally thousands of rickshas, many of them motorized, running on the roads around Comilla. Some of you may say that is not a particular sign of progress, but for people who do not have transportation, a bicycle ricksha is a definite sign of progress. The only reason those things have come in such great numbers is that there are roads for them to run on now.

When Ed first went to Comilla, there was essentially one road through the town. If you go there now, you will find that in one thana, there are better than 1,000 miles of all-weather roads, most of which were built by the people themselves.

MR. JUSTICE: We have time for one more stem-winding question if someone is so moved. Otherwise, you will have to listen to me talk for 30 seconds.

MR. WILSON: Just recently, the Comilla Academy and the government of East Pakistan put out the 1965-66 report of the rural works project During that winter, 18,600 miles of rural roads were built; 11,980 bridges and culverts were put in; 953 miles of drainage and irrigation canals were put in; 2,350 miles of embankments for flood control were established; and 839 town or municipal halls and community centers were built. Those were the training centers put up in each of the thanas. Fifty-seven tanks were built, as well as 23 markets and shopping centers and 24 parks and playgrounds.

MR. DAVEY: What is the percent that agricultural production has gone up as a result of all this?

MR. WILSON: As far as I know, there have been no statistics on that, except that--well, agricultural production began trending upward in East Pakistan about 1959, give or take a year either way. It went up about two and a half percent a year for the first three or four years and since then, it has been going up about 5 percent. How much of that is due to this, I have no way of knowing, because there have been so many other things going on at the same time.

MR. JUSTICE: Mr. Sloan?

MR. SLOAN, Department of Labor: Did these measures bring about effective flood control?

MR. EDGAR SCHULER: I would say one of the biggest problems East Pakistan faces is that, unless the surrounding country of India is willing to help solve the problem, it is going to have a difficult time with flood control.

MR. WILSON: On a local basis, flood control was quite effective very frequently. But from the overall provincial standpoint, the work done so far has just been a drop in the bucket.

MR. JUSTICE: I would like to put in one plug for womanpower along with this subject that we have. One of the things that makes a great impression on one who visits Comilla is the work with the women. They, in spite of all this structure of keeping women suppressed and out of sight, are breaking through. These women are beginning to come and they are going into classes for sewing and they are beginning to tackle some prenatal care. Give them a little time, they may tackle some other steps that go along and tie into this problem that we are talking about.

It is a most thrilling experience to see some of the starts that are being made in East Pakistan. But whether it can be evaluated in terms of actual percentage increase of rice production or the percentage increase in the family income--I do not know whether anybody has the answer for it.

We have had a lot of fun being here. We thank you for asking all of us. Many thanks to our two distinguished speakers for doing an excellent job.

Wednesday, May 3, 1967
TRAINING FOOD PRODUCERS

MARY S. RESH: Ladies and gentlemen, I know you are going to be very disappointed that Mr. John P. Walsh could not be here with you. He is leaving for Tokyo in the morning and he had an important conference with Mr. Ruttenberg this afternoon, so I am his pinch hitter. He is sorry that he could not come.

I am Mary Resh and I am Deputy Assistant Manpower Administrator in the U.S. Department of Labor.

When Mr. Walsh told me yesterday that he probably would not be able to come and I looked over the agenda for this session, it struck me that this is an area that is not too different from some of the other areas for which we have manpower concerns.

Certainly, we all agree that this is an age of scientific discovery and technological innovation. It has been my experience in many of our industries, in many fields, that we have become so enchanted with the products and the processes of technology that we give only casual attention to the manpower development aspects of technology. And I think it has just been in recent years that we really have been coming to grips with this whole matter of this critical need for better manpower planning and better manpower utilization, better manpower development. And, as a case in point, I would like to just mention the health service industry. Now, for years, we have talked about the advances in medical science. We have talked about improving medical care and we talk about cutting down infant mortality, we talk about increasing length of life. We talk about doing a great deal in the area of mental illness; we fight disease, and we have licked polio. We are talking about licking cancer. We are coming along.

But it has just been in recent years that we have come face to face with the fact that health manpower development is a critical need. Now, I will admit that we have pushed this matter of the professional. We do not have enough. But for the middle-level and the less-skilled person in the health service industry, we are just beginning to do much in the area of training. I just use that as an example, because I think some of it may be applicable to this field of food production.

Now, I should admit, right at the beginning, that I am not an expert in training food producers. But as a vocational educator, I can say that in the United States, we have had agricultural education for a long time and a good job has been done through agricultural education. But I am not so sure that we are talking about the same thing when we speak of agricultural education and when we speak of training food producers. Well, this afternoon, we are going to talk about training food producers.

Now, if anyone is moved to talk about marketing and distribution, you are not going to be ruled out of order, but we are going to put the emphasis on training food producers. And I am glad that we do have some experts here this afternoon who are going to discuss this topic.

I would like to introduce them to you. We will start with Mr. Vaniman. Mr. Vaniman is Chief of Employee Development, Bureau of Commerical Fisheries, Department of the Interior. Mr. Vaniman, interestingly enough, has been a teacher of English and American literature. He was a Fulbright professor in Greece. He has been on the training staff of the Federal Aviation Agency. He has recently completed a survey of the training needs in United States fisheries. So we have this expert in training.

Then we have Jack Frankel, who is agricultural adviser to the Office of Training and Programming in the Peace Corps. Before joining the Peace Corps, Mr. Frankel was very active in agricultural circles in Connecticut. For four and a half years, he served as director of the Peace Corps in Iran and, since March of this year, has been Programming and Training Adviser in agriculture for all Peace Corps programs.

Now, we have Mr. Sturt, who is director of the Rural Manpower Center at Michigan State University. He has had an interesting career, too--agricultural economist with the United States Embassy in London and Ankara, extension specialist in agricultural economics at MSU. He was District Extension Specialist for the upper peninsula, consultant for the MSU project in Pakistan, and is chairman of the Governors' Council on Farm Labor.

Then we have Mr. Swingle, who is professor of zoology-entomology at Auburn University's School of Agriculture and Agricultural Experimental Station. Mr. Swingle has been an entomologist with the U.S. Bureau of Entomology. He is a fish culturalist and has held this position with Alabama Polytechnic Institute. He has been directing an expanding program on fish production and pond management at Auburn which is the largest in the world, by the way, and he has had a great, wide experience abroad in this area of fisheries and pond culture--in Japan and Hawaii, where he has attended conferences as United States representative; he has been adviser to the Israeli Fisheries Department, and so forth.

We are going to start with Mr. Sturt. Then we are going to ask Mr. Frankel, Mr. Swingle, and Mr. Vaniman to speak to us. Then you will have an opportunity to ask questions and to have a cross fertilization of ideas and discussions before our session is over. So with that, I am very happy to present Mr. Sturt to you.

DANIEL W. STURT: Much of the world is rural, and it is appropriate that we are at last looking at rural manpower and its relationship to development. This is in keeping with some of the thinking of the times since today there is a universal concern for the welfare of the individual. In all of my experience abroad I have been keenly aware that I am in truth a foreigner with a different cultural background, a different set of values and attitudes, and that I must first seek to identify with those whom I aspire to help. Identification with rural people in the developing countries of the world is not an easy task, and there are those, I am sure, who would question the use of such an approach. On the other hand, unless we can understand why people do things the way they do, we cannot be very useful in helping them to see solutions to their own problems, and in helping them to effect change. I happen to be interested in language as a window to a culture.

Perhaps what I am trying to say is that I am not so sure we have many of the answers in helping people of the developing countries; I am not so sure we know what is "right" for them. Inevitably, the people themselves must find their own answers. We can provide insights to problems and suggest approaches for solving them, but there are severe limitations to our effectiveness as agents of meaningful change.

With this introduction I would like to point out that my comments on rural manpower are based upon my experiences in the rural areas of Pakistan, Europe, and the United States. Interestingly enough, I find some striking parallels between the farm labor picture in West Pakistan and that in the United States. It would appear that this is also the case in a number of other developing countries.

The Human Factor

To a large extent the human factor, as such, in agricultural production has been ignored. The agricultural establishment in the United States and farm groups generally have been concerned primarily with the family farm and the family farm ideal where land, labor, capital, and management are vested in one person or one family unit. Seldom has labor been looked upon as a separate factor of production. The more than three million farm workers who did some farm work for hire in the U.S. in 1964, although some worked seasonally and others for less than a month, attests to the fact that farm labor is, indeed, a separate factor of production. The large number of workers in developing countries who only contribute their services and do not contribute land or capital or participate in management also represents an important part of the human input in farm production. Recognition of farm labor as a separate factor in agricultural production is essential to an understanding of many of the problems associated with farm manpower.

Approximately two-thirds of the labor inputs on U.S. farms are provided by farm operators and/or members of their families. Hired workers provide the additional inputs. I would guess that less than half of the labor inputs in the agriculture of developing countries is provided by hired labor, with family type or other operations where labor and management are combined, providing additional labor inputs. Most of our attention, both in the U.S. and similarly abroad, has been focused upon the landowner-manager, the decision maker. Also, most of our assistance has been technical assistance.

Type of Labor in Developing Countries

There are essentially two types of farm labor in developing countries, as there are in the U.S.: (1) family farm labor, and (2) hired farm labor.

Family farm labor--Assistance to family farmers in developing countries in order to increase the returns for their resources has received much attention. Better varieties, fertilization, improved equipment, better seeding cultivation and harvesting practices, and a host of other factors have been singled out as reasons for low yields. In addition, the lack of markets, inadequate credit, and cultural and institutional barriers have been recognized as impediments to change.

Improving the returns to labor on farms of this type involves improving the returns for all of the resources controlled by the operator, and a host of complex interlinked considerations are involved. The key is change and getting operators to be venturesome enough to break with established patterns and practices. In spite of all the adoption and diffusion studies of how farm operators get information, the motivation for change remains mysterious.

We need to know more about the "why".

Motivation for changes in farm practices was the focus of some research carried out at the Academy for Rural Development in Peshawar, West Pakistan in 1962. I believe this research has important implications for improving farm practices and increasing the returns to farm labor of this type. Accordingly, I wish to discuss it briefly.

An intensive analysis of changes in agricultural practices in four villages in West Pakistan in 1962 was made. Ten types of changes were used as a yardstick, and 50 decisionmakers were selected at random from a carefully prepared census of decisionmakers in each village. The villages were selected to give two irrigated and nonirrigated villages, two in the Northwest Frontier and two in the Punjab. In all cases the villages were away from urban centers, off paved roads, and mostly inhabited by small landowners. The change quotient was 4.1; 82 changes were made out of a possible 2,000, with more changes being made where decisions were individual-centered. The chief reasons for not making more changes were given as lack of credit and materials not being available. The capacity for risk-bearing appeared to be an important factor.

The main reason given for making changes was to get more food for family consumption. Where anticipated production increases would be sold, the stated reasons were to obtain via money or barter more consumption items. Food and clothes are the major items of interest with little concern for production investments, or household items and the like.

We need to understand why changes are made and how we can create the climate in which more changes are likely to be forthcoming. The immediacy of response, the quickness of results, the risk involved, and whether the changes would result in more food and clothes for the operators and their families were important considerations of the operators in these four villages. Before we can design useful training programs for farm operators to help them in making changes, or encourage them to be designed, we must know more about the process of change. We must know more about the culture and the economics of the area where we would like to see farm operators helped.

Hired Worker--Now let us concern ourselves with the millions of hired workers in developing countries and their relationship to worker productivity and agricultural production. While the arrangements vary from area to area and country to country, these workers provide service and contribute little more than service to the production unit to which they belong. Remuneration is sometimes in cash but more often in kind. Their role in the decision-making processes of the agricultural unit is minimal. They have little reason to work beyond that which is necessary to continue in their jobs. Levels of living are extremely low, and the returns for greater effort are not likely to accrue to the worker, but to the employer or landlord.

Large landlords are, perhaps, less inclined to change practices.

Training Program for Rural Manpower

Training programs designed for four audiences would, I believe, be appropriate in order to increase agricultural production and farm worker productivity: (1) family-type farms, (2) hired farm workers, (3) landlord and farm labor employers, and (4) government officials associated with agriculture, farm manpower, and rural communities. What kinds of training programs might be developed?

1. Family-type farmers--farm management and resources organization, new technology, agricultural skills, basic education, leadership, etc.

2. Hired farm workers--workers need to receive many of the same kinds of training as family-type farm operators. Basic education is obviously important. Training in agricultural skills such as equipment maintenance and repair would be useful. An understanding of farming and some of the science of agriculture is essential to developing a sense of the significance of his contribution to the overall operation.

3. Employer training--I believe the highest payoff in terms of increased productivity will be discovered in training programs for farm employers, training programs in upgrading the quality of farm labor management and the total farm work environment. Farm employers need to understand that there is a quality dimension as well as a quantity dimension to farm labor. Good farm labor management recognizes that labor is a flexible resource. Farm employers need to understand that the productivity of labor is partially a function of the existing work environment as perceived by the laborer.

Farm employers must be taught some basic facts about workers. What are they? First of all, the worker must feel that his job is important. This is essential to his own pride, his own self-esteem; and he should feel that other people feel his job is important, also. A successful working arrangement between management and labor takes cognizance of certain needs which must be fulfilled if labor is to be highly motivated and productive. Firstly, every worker wants to be respected as a human being and someone with dignity. The worker and his family aspire to achieving a status equal to that of their neighbors--at least, in the eyes of the manager.

Secondly, most workers want to accept responsibility. It builds their confidence and enhances their self-esteem. While the situation may vary from worker to worker, the lack of willingness to assign greater responsibility to workers is a problem in obtaining and keeping high-quality labor in agriculture. Every worker has capacity for accepting responsibility for certain tasks and assignments. Management must seek out those areas where responsibility might be appropriately assigned.

Thirdly, many workers want an opportunity to grow. This is particularly true of the more highly motivated individual. If agricultural managers expect workers with growth potential to remain in their employment, they must provide opportunities for learning and growth.

Fourthly, workers need to feel that they belong. Psychologists tell us that everyone has a basic desire to be accepted as a member of a group. Translated into the agricultural worker - management relationship, this means creating the kind of social atmosphere in which the worker does feel that he is a member of the team, an important member of the team, and an important member of the community where he lives. In addition, workers prefer to belong to a good team; they want to be a part of a successful operation.

In addition, farm employers could benefit from understanding the importance of management sharing; the process whereby management involves labor in decisionmaking. In the continuum of decisions made by the farm operator there is considerable variation in the consequences which each decision sets in motion. By careful analysis of the worker and his ability to contribute, workers could be effectively linked into the decisionmaking processes. Such involvement would, obviously, vary greatly with the worker and the farm situation, but such an approach is a step in the direction of satisfying some of the basic needs of labor referred to above.

4. Government officials and others in the bureaucratic maze found that most developing countries could benefit from manpower training programs. They could be trained to work with all three audiences--family type farmers, hired farm workers, and employers--more effectively. The government worker with a sense of village consciousness and a basic concern for the individual farmer or the individual farm worker is hard to find. There are, perhaps, many reasons for this. Among them:

(1) The power tends to come from above, rather than from the masses.

(2) There is little structural linkage with communities insofar as most agencies are concerned (United States' school board, for example).

(3) Workers are inadequately or improperly trained.

(4) Some workers find it hard to identify with the village people, others could identify, but they refuse to. After all, they spent a lifetime trying to get out of the village, and refuse to identify in a real sense.

(5) Educational institutions have not played the catalytic role in development that they could. The education-for-living concept is often lacking. Also, the research-education functions as carried out by our land grant institutions in the United States are usually missing.

These then are some of the things that need to be overcome. While there are no simple answers, I would suggest that manpower training efforts would have a high payoff in the war on hunger. General emphasis upon the human factor in agricultural production, finding the avenues for motivation to change, training, and creating a better work environment would all be steps in the right direction if we wish a more productive, more fully utilized manpower resource and ultimately, in agricultural parlance, to plow under the stork.

MRS. RESH: Thank you very much, Mr. Sturt. I think all of us could listen to you longer. We have experts in fisheries and we are going to separate them. Mr. Swingle is a fresh water fisheries expert and Mr. Vaniman is a salt water fisheries expert. We are going to start with the fresh and we are going to ask Mr. Swingle if he will talk to us.

H.S. SWINGLE: This whole problem in land and water utilization comes about because of the hydrologic cycle, in the course of which moisture comes inland from the oceans, the rains fall upon the land, and the runoff waters move back to the oceans in varying percentages, roughly about one-third of the entire rainfall. In this process of continuous leaching, these cyclic waters carry from the land annually to the oceans about one-half of all the plant nutrients available for food production in areas of heavy rainfall. So fisheries and water conservation are very important parts of agricultural conservation because if a farmer improves his land or fertilizes his crop, the fertility recovered is divided between what he gets back as a land crop and what we can get back as crops from the water. Consequently, in order to support our continually increasing populations, it is very essential that we have cooperation in management of soils and fresh waters for the more efficient utilization of available nutrients in food production.

The fresh water fisheries are basically of two types. One is the "Capture Fisheries". These are the fisheries that come from the rivers, from the lakes, from the natural swamps, and a certain part of the bay areas. In these areas about all we can do is take what nature provides and regulate the fishing to where we get the maximum return each year, remembering that this maximum return must be tempered by the income to the fisherman for his efforts. So this limits to a certain extent what we can do in the capture fisheries in the fresh water. In this field, training that has to be given as far as the fresh water is concerned is in the use of more power equipment. In many areas, three-fourths of a fisherman's time is spent rowing out to the fishing grounds and back. This is a rather unprofitable operation, as you can see. If we can mechanize him merely with an outboard motor, in many cases we can increase his efficiency three-,four-,even ten-fold. We can also teach him to use better nets, seines and other equipment such as nylon seines and nets. In Vietnam, fishermen said that their catch increased roughly 300 percent following the introduction of nylon to replace cotton and linen nets. Fish apparently could see the latter more readily; also they must be pulled out of the water daily and dried to reduce rotting and fouling while nylon nets do not need this care.

The capture fisheries are available in most natural waters. We will have to use them to whatever extent we can. The most productive of these fisheries is the overflow swamp fisheries, where the big rivers in Southeast Asia flood thousands of acres yearly. During the wet period, the land is inundated from three to six months, and a crop of fish is produced; then as the waters recede during the dry period, this crop can be harvested almost 100 percent by intercepting the fish as they migrate back to the rivers. Here, of course, is a renewable resource and there is no particular point in not using almost all these fish. But in order to use all the fish, we then have to go to the system that is used in Asia of selling the larger fish on the market and making the small fish into fish sauce, because many of these are too small for consumption otherwise. In many of the capture fisheries, productivity varies from five pounds per acre on up to probably a high of 100 to 200 per acre. If we are going to get more return per fisherman-hour--and we must remember this is what we are trying to do--we are not just trying to keep people alive: they must get enough return for their labor so they can have a relatively good income--then fishermen must move gradually to the operation of culture fisheries.

Culture fisheries are the fisheries that we develop by management techniques in fresh water ponds, in brackish water ponds, in pen cultures on the edge of lakes, and in basket cultures in rivers.

Here, of course, is the key to raising food in greater amounts and putting it into the places where we need it. One advantage to pond culture is that it can be placed wherever the soil will hold water and where we have adequate rainfall. It can be put inland in the local areas of consumption.

We must train people in the techniques of culture fisheries. That is what I am supposed to talk about. I have the problem in the University of trying to train students. This is a rather difficult thing, too. In fact, I have noticed a few of you asleep here, also. This reminds me of the story of a professor who dreamed that he was up teaching his class. He was having a horrible nightmare, because he was totally unprepared and furthermore, he was talking nonsense. All of a sudden, he woke up and found that is exactly what he was doing. The students probably were not bothered. They were asleep anyway.

In teaching, I often tell my students that they must remember what the ancient Greeks taught about learning--namely that people learn by remembering what they knew in some previous life. I am sure that this has been disproved on paper to the satisfaction of many scientists. However, we do learn by remembering things we already know; you folks have gone through this as you took geometry. Step by step you agreed, if you passed the course, that you already knew certain things and by re-combining them, you also knew new things. So the first problem in teaching people is to start with what they do know. If you cannot get down to this level, you might as well go home and forget the whole thing, because you are leaving them behind.

The next thing you must do, either by illustration, by analogy to their experiences, by demonstrations or other means that will keep them awake and thinking, is teach in a way that they will be able to follow you step by step so that they finally agree, "Yes, we already know this." If you will do this then step by step, you can lead them up to where they can learn technical things that they never knew before. Let me say that this is a good system of teaching and the ancient Greeks were entirely correct from a practical standpoint. This is a good method, then. But we have to use words to express ourselves. This is where we often get into trouble, of course. Sometimes we cannot find the words and the terms that others can understand. It becomes quite a problem in using your voice and your words to express what you mean to anybody else, even in this room. It is much more difficult in developing nations. A Japanese scientist made a study of language, trying to find out how it was used by various groups. Naturally they found the greatest use women had for language was for the prevention of silence! This is still often its use in my family, possibly not in yours. But language was devised as a method of communication.

Unfortunately, in many areas, this is not enough. The written word, of course, is merely an extension of your voice. So once again, it is more or less the spoken word, except it is harder to understand. Our Dean of Agriculture was a Botanist and he worked on a horrible plant that we have in the Southeast called "Nutgrass". It stores energy in a little nut underground. When you chop off the leaves today, the next day they come up again; you cut it off, next day it is back up and so on. It is quite a problem. He got a letter from the farmer back in the back country which said: "Dear Sir: Please tell me how to control Nutgrass and don't send me no damn bulletin."

Too often, we think when we have put out a bulletin or leaflet that we have done something greatly worthwhile. But it is hard for many people to read and understand. So if we are going to teach new techniques, we must demonstrate them. This demonstration has to be placed where the farmer can see it. American agriculture advanced slowly in the United States as long as we had Experiment Stations developing information and merely putting out bulletins. Rapid progress only began as these things were put out in demonstration plots where local farmers could see them. Even this often does not result in wide usage of research information, because in all countries of the world, people say, "Well, the government can do this, but I cannot." So we must find locally respected persons who are willing to take new methods and put them to use on their own farms. They must use new methods; if they find them successful, then the others will follow. So the process has to be that we have to hear, we have to see, we have to understand, and then we have to put this new knowledge to test by use.

Now, I do not know how many of you have tested mentally what you have heard, but this morning I heard a speaker say that statisticians have proved that if two people were alive 2,000 years ago and reproduced at the rate of two percent a year, there would be a mass of humanity 100 feet deep on the top of the earth. Our understanding is then that two people have to reproduce at two percent a year and two percent of two people is .04 of a person, presumably dead upon arrival. So we would have to reject the statement, as it does not stand up under critical examination.

There is one other thing we must do as we put demonstrations out for people to see. They must make a striking difference. A 10 percent difference is almost nothing and you get nowhere. But if you can put a demonstration out in these villages so that these people can readily see that there is two, three, four, five, or more times what they have been producing, then you have a chance to persuade them to try. If you cannot persuade people to try new things, then you are not going to get very much advance. This is a complicated problem and the hardest job of all is to persuade people to change. I do not know how to do this.

Thank you.

MRS. RESH: I think Mr. Swingle, in addition to being a fresh water fisheries expert, is a philosopher, too, and a realist.

Now, we are going to sandwich in Mr. Frankel from the Peace Corps who is going to talk to us about his theories on training food producers.

JACK FRANKEL: Most of the day, I have become more and more comfortable in attending this gathering, along with my colleague of the advisory group in the Peace Corps. This is a new, small division that was created by Jack Vaughn to face one of the problems that we have been discussing all day. Comfortable because most of the people who have spoken have, in a way, taken some of my thunder, but it is a nice feeling to know that there is so much agreement that the Peace Corps is moving in the right direction.

Herb Waters this morning, especially, I think got in more plugs for our agency than I will be able to get in in my 10 minutes.

The Peace Corps, like other American agencies involved in foreign assistance type of programs, is emphasizing food production projects. There is no need for me to go into any detail about the need. I am sure we are pretty well aware of that by now.

The Peace Corps at present is working in 52 countries. All are facing in some degree the problem of food requirements as they relate to the population explosion.

It should be noted also that Peace Corps activity in agricultural production is not a recent development. There are at present 1,600 volunteers in direct agricultural projects, along with the thousand volunteers in what we call Agriculturally Related Village Projects in 28 countries. There has never been, really, enough agricultural expertise in the field staff of the Peace Corps to develop, in depth, the kind of agricultural programs which best could have used Peace Corps' capabilities in those first few years. I think this is reflected by the small number of volunteers that we have in agriculture--2,600. This is a relatively small percentage of our total volunteers--13,000. We have at present four summer training projects which will include 650 additional volunteers in agricultural food production projects. But the world food crisis has caused a marked demand for Peace Corps assistance in agriculture, a marked increase from countries that have not previously indicated a desire but from whom we are now getting strong and continued pressure for assistance in this direction.

In a five-year projection which was published recently, the Peace Corps expects to have about 60 percent of all projects within five years in agriculture or in agriculture-related programs. The limiting factor, to date, in manning food production projects has been the short supply of volunteers with either a farming background or an agriculture degree.

This brings me to the reason for my being here. We are talking about training manpower for food production--we in the Peace Corps are thinking in terms of using in our agriculture projects the type of person that the bulk of our recruits represent. This is a very definite change for Peace Corps. Recognizing the urgency of host country requests and wishing to make an immediate response, Peace Corps has begun planning to use liberal arts graduates who have little or no farm experience to supply the necessary manpower for these projects. The decision to train the AB Generalist, and that is Peace Corps jargon for our liberal arts graduates, was not based on pure fancy or hope. Peace Corps has some very successful projects in the field at present which are using intensively-trained generalists. And prior to the recognition of this training approach, many individual volunteer generalists developed agriculture skills in the field and they have done an outstanding job. In other cases, groups of generalists--I keep calling our liberal arts people generalists--have received intensive training in a limited agricultural area after their arrival in the host country and have gone on to make some very impressive contributions in food development.

With all this behind us, it is time for us to recognize that we can do something with people other than the so-called agricultural types. The primitive level of almost all farming in these developing countries makes it possible for an intelligent, sensitive, alert, albeit low-skilled person to contribute meaningful guidance toward improved agricultural practices. There is widespread realization that the so-called trickle-down method of technical guidance has not worked too efficiently, that information pumped into the top echelon of most of the developing countries is really not reaching the dirt farmer or, for that matter, the extension agent or the village worker. It is also generally accepted that highly-skilled technicians are often too sophisticated to relate to or to communicate with farmers at the village level, or the village worker. I think that this particular subject was aired a bit this morning, too.

It takes perceptive programming, however, by staff in the field to make effective use of the so-called AB Generalist. You cannot always use these people. There are only certain situations where they can be most effective. It requires a thorough understanding by the field staff person of the agricultural structure of the host country, along with a comprehension of the capabilities of the generalist volunteer. The volunteer can be prepared to give valuable assistance through intensive training in a selected skill, which may be the production of a single crop or animal husbandry or poultry husbandry or the like.

We found that we cannot go into depth when we respond to a particular request. As an example, Nepal has gone into a program with us in which we will be supplying up to 100 people by the first of the year who will specialize in rice production. We have been training for this particular crop.

The most important element, however, in this intensive training program remains the principles of agricultural extension. But under the heading of agricultural extension, Peace Corps includes the development of the strongest natural skills of the AB Generalist. They are language, sensitivity to the culture, and the ability of the volunteer to communicate and relate to the host country people.

The importance of language can never be overemphasized. This is something that we in Peace Corps continue to emphasize and reemphasize in our training.

The greater use of properly-trained generalists will permit Peace Corps to enlarge its present food production projects and begin new programs where the need exists. In broad terms, Peace Corps sees the volunteer as an organizer and a catalyst who will help those with whom he is working determine what they want to do, while guiding them in the process along practical and feasible lines. The volunteer would help organize and bring to bear resources available and needed for attaining the objectives sought, and support this work with practical advice and guidance.

The essential objective is to motivate and move farmers and villagers themselves. The volunteer is the organizer, the spark, the dynamic catalyst, if you will. He must be trained, however, to have the understanding and the necessary basic skills to exercise the judgment required to determine what should be undertaken.

I might add that Peace Corps is aiming programs at bringing along and developing an interest among rural youth, not only in the fact that they are surrounded by agriculture and are part of the country's agriculture, but hoping in this process to upset the flow of young people from rural into urban areas in developing countries. Very little work has been done with rural youth, very little community development work. Although Peace Corps has worked in urban areas with youth, they have not attempted anything in rural areas. We hope to be getting into this in depth.

I hope that what I have done is to hit on some of the highlights of what we have been doing in the training of generalist, nonagricultural people for work in agriculture in the developing countries.

Thank you.

MRS. RESH: Those were some very interesting points you raised, Mr. Frankel.

Now, we come to Mr. Vaniman, our salt water fisheries expert.

PAUL VANIMAN: I think this panel is a bit lopsided, with two fishmongers on it and two agronomists, because after all, fishing, if you look at our total economy, contributes very little. Commerical fishing contributes some $450 million to the national economy, but I think this is only about one percent of what agriculture contributes.

We are beset with many problems in commercial fishing today, problems that cannot easily be solved. The commercial fishing fleet, for instance, is filled with obsolete vessels and obsolete equipment. We cannot compete with such nations as Russia and Japan, which have vast fleets, fleets of 20 and 30 ships with mother ships in which they actually freeze fish. We also have the problem of the advanced age of our fishermen, their low educational level with the concomitant apathy which that brings, and resistance to change, the immobility of most of our fishermen who want to fish where their fathers fished, and the need to increase the productivity of the fishermen so that they can compete with other industries. They cannot just raise the price of fish or they price themselves out of the market, of course. We have to get a greater fishing proficiency to really compensate for a decrease in biological availability. These are just a few of the problems we face.

Many of the problems we can really see in microcosm if we look, for instance, at Boston. In 1965, my bureau made an economic study of the Boston off-shore fleet. We found that 70 percent of the fishermen were foreign-born, most of them having come from the maritime provinces of Canada. Incidentally, because of high employment in Canada, fewer people are coming down, so this is a labor market that we can no longer draw upon.

We found out, for instance, that the average age was a relatively high 57 years in this off-shore fleet. Only 25 percent of them had completed grade school, in contrast with 75 percent in the United States civilian labor force. Only 10 percent had completed high school in contrast with one-third nationally. Eighty-six percent had never fished in any United States port other than Boston, so that the Boston labor force is tradition-bound and immobile. Computed on an hourly rate, their wages could not compete at all, and they receive no paid vacations, no sick leave or the other fringe benefits which are so common. The job of a fisherman lacks the off-the-job attractions that many other jobs offer.

Well, most of the problems that I have put my finger on in Boston we can find all around the coastline of the United States. Our fleets are filled with antique vessels, with primitive equipment, crowded, uncomfortable living conditions. Many of the vessels offer a hard, rough life. Why go to sea, why leave your family and the comforts of home if you can find another job that offers a steady income and paid vacation and retirement, and also evenings and weekends with the kids? And add the rigors of the life at sea, the economic uncertainty that comes with never knowing how large your catch will be, how many days will be spent in searching for a large school of fish, and we can see that commercial fishing has a rather limited appeal.

All around the coastline, we have very definite manpower shortages. We have great needs in Gloucester, Boston, and New Bedford, for instance. Even those names have a certain magic for us, I think. We need fishermen, we need diesel engineers, we need fish filleters, as we say in my bureau. We do not say "fillays." We say "fillets," which sounds strange to me. In Virginia we need fishermen; in Florida, shrimp fishermen; in Louisiana, oyster fishermen; in California, diesel engineers; in Washington and Oregon, fishermen. Going up the coast, we need diesel engineers in Alaska; we need to upgrade the skills of captains. They know nothing about navigation. They do not want to leave the land, you know, they keep it definitely on the horizon. And because each of the coastal and our inland fisheries, too, on the Great Lakes, has its own unique, peculiar problems, we have no tailor-made solution to all these shortages. The kind of solution that is working fairly well right now, for instance, in New Bedford, Massachusetts, is not working at all in Florida, or such a state as Alaska, where commercial fishing is a major industry.

Alaska has an active University of Alaska Fisheries Extension Program which provides a variety of training courses in a score of different locations. Maine is just beginning to develop its own state fishery extension service.

You see, in general, we have had just two sources of training: one, programs that have been financed through the Manpower Development and Training Act; and secondly, programs offered in a few high schools or community colleges.

Under MDTA, we have conducted some programs in Boston and Gloucester, in New Bedford, in Tampa and in Hawaii. Just last Saturday, in New Bedford, a training course was completed which is typical of MDTA courses. It was a 12-week training course for fishermen. Forty enrollees started in it and 26 completed. Twenty-six have entered the fishing fleet there in New Bedford. The attrition in past courses, incidentally, has been running rather high, about 50 percent. In fact, it is alarmingly high. We lose about 15 to 20 percent of the trainees just because of seasickness. They cannot take being out at sea in boats that are not really very large.

We lose some through the draft, of course, and we lose quite a few just because they cannot stand being away from the family for a week or 10 days or even as much as two weeks. Then just in general, the rigors of life at sea on small and crowded boats add to the attrition.

The 12-week course that was just finished in New Bedford and another one started on Monday, provide both training at sea and ashore. Each trainee makes four or five trips averaging seven or eight days on trawlers, primarily, out of the New Bedford port. The trainee, who is aboard not as a crew member but as a sort of supernumerary, gets to perform the whole gamut of duties of the fisherman: setting, hauling, repairing the nets, sloshing the catch down, icing the catch, and preparing the ship for the next trip. The shore duties consist of rigging repair and splicing the wires and ropes and learning to work with winches, etc.

Incidentally, we figure the average cost to the Federal Government for each trainee is about $800. It removes him, of course, from the ranks of the unemployed and lets him enter a trade where the average earnings are $6,000 to $6,500. Those are the figures that we give out officially, though in talking with some more knowing people in the New England area, I am told that someone sailing out of Boston or Gloucester on a fairly modern vessel, a fairly bright, vigorous young person, with aggressive crew members as well, can make $12,000 to $14,000 a year average, though the fishermen themselves will not admit that it can be that much.

These programs have been a success in New England and as they continue, they cannot help but have a salutary effect upon the fishing industry in New England. In Tampa, the Florida Shrimp Association sponsored one training course under MDTA for shrimp fishermen. Because of the high employment in Florida, they had to practically drag people off the streets to get them in the class. A critical shortage of fishermen exists in Florida. But officials down there tell me that until we have made some basic changes to attract people into the fishing industry, training is not the solution. We need to get better vessels and more attractive vessels. We can train people and then get them on to a vessel, but they will leave, you see, and they will not come back. So that is a very difficult problem that we have to face and do something about.

Schools and colleges provide the second source of training for people who want to go into fisheries occupations. The limitation here is that there simply are not enough of them. Now, the United States is blessed with an abundance of universities in which, if you want a degree in one of the aquatic sciences, you can get it. But if you want to be a fisherman, there is almost nowhere you can go. If you want to be a farmer, there are hundreds, literally, of schools you can turn to. Now the Maine Technical Vocational School in Portland offers a two-year course in marine technology; the University of Rhode Island is starting in this fall. The Gloucester Vocational High School has offered a three-year course, but it is withering on the vine for lack of equipment and funds. Southport, North Carolina and Abbeville, Louisiana had offered instruction but I am not sure they still do; Cape Fear Technical Institute and Suffolk County Community College on Long Island offer a two-year course in fisheries, and so does Clatsop Community College in Astoria, Oregon. That really is just about it as far as training fishermen is concerned.

In conclusion, let me say that the sea around us is very rich in protein. Here is food to feed the world. My bureau, of course, has successfully developed fish protein concentrate. I think you have been reading about this a great deal. If you can get a person all the protein he will need for a day for a cent or a cent and a half, you have a tremendous resource.

We, as Americans, are losing out in the fishing industry. We used to be the number one fishing power in the world. We are now in fifth position. Peru is in number one position, then mainland China, Japan, and Russia. Norway is in sixth position, pushing very hard and in the next year or two, we may drop to sixth position. We are now importing far more seafood into the country than we are actually producing ourselves.

So we face very critical problems in training fishermen and problems that I really do not have any solution to, though I think we are making some small gains in places like New Bedford and Gloucester and in Boston.

MRS. RESH: I want to thank these four fine gentlemen. I am sure that they have raised a lot of questions in your minds that we would like to discuss now. So if you have a question and you would like to direct it to a particular member of the panel, you may do so.

MR. GARRISON, U.S. Department of Labor: When you spoke of the protein in the sea, did you refer only to fish?

MR. VANIMAN: Yes, I was referring to fish.

MARVIN MIRACLE, University of Wisconsin: There is a general issue that seems to be lying behind this session. I would like to hear some discussion on it. I think it affects not only the quantity of manpower training for food producers, but also the quality or the type of training. That is, to what extent are the big changes that have to be made those which can come only through training? Or put another way, is there a large amount of knowledge that perhaps farmers already have or can learn readily without specific training? To what extent can we borrow from knowledge that is already available? Do we have to teach them everything to get some change or is there change going on that we can work with? This is the kind of issue I wanted to raise.

MR. FRANKEL: Well, you are talking about using farm background of people in some of the programs that we have worked in. We find that the urgent thing for us to teach is not agricultural skills, because they bring some basic agricultural skills with them. But we have to train a sensitivity to a different culture. We have to train an understanding of how to communicate with this culture in order to effectively use whatever farm skill they have.

Now, taking this a little bit further, if we use the liberal arts graduate, the AB Generalists as we call them, we have to still stay with what I consider the most important element. That is his ability to communicate and relate in a new culture, in a different culture. Then we try, in addition to this, to train in a particular skill, like poultry raising in India, or growing hybrid seed or rice in Nepal, or sugar beets in Iran. They are working directly with the farmer. If you have an understanding of how primitive agriculture is in most of these countries, you can understand that we can train nonfarm background people, give them enough skill so that they can effectively start some changes. But they must be able to communicate. This sensitivity is much more important at this point.

MRS. RESH: Do you want to speak to that?

JAMES LEMONS, Elk River Development Agency, Tennessee: We find we have problems in common. In speaking to the gentleman's point there, I found that in our location, in which we represent a rural area of about 5,000 square miles, there are 28,000 or 30,000 families below what the government classifies as a poverty level. These people have to unlearn some of the things they have learned in terms of broadening their concept of recent farm practices. And we had to change some of the traditional ideas of those who had been involved, let us say, government agencies, that were already in the locale.

To get the cooperation and coordination of agencies as well as the maximum feasible participation of the community, we had to bring the agencies together to see what part each could contribute to have the greatest impact on upgrading of this human being. It is a matter of getting them together to coordinate their efforts and bring together the thing we are talking about.

HAROLD DAVEY, U.S. Department of Labor: I have a question for Mr. Sturt, dealing with the training programs of rural manpower that he outlined. I wonder if he could elaborate a little more on the programs for hired farm workers and the farm employers of hired labor and list the things that have to be taught, the sort of organizational structure that you might envisage through which this United States could transmit this training or systems?

MR. STURT: I think there is a host of things we can do. We can employ all of the methodology we are currently using in adult education and extension education. We have learned a great deal at Michigan State relative to training of farm employers, and this is really where I have drawn most of my material, from our own experiences. For example, local farm labor councils are one device for the community to bring farm labor problems into focus; workshops and seminars are certainly an approach in working with farm employers.

I thought our theme was supposed to be manpower in foreign countries rather than our own country. Maybe I missed the boat on this, but I am not so concerned with skills in developing these countries. My experience has been that the farmers in Pakistan, the farmers in India, already know much, much more than they are using. It is a question of changes in attitudes, getting them motivated and so forth.

In terms of specific training programs for farm employers, I think this is certainly not going to be easy or easily accomplished. I think that institutions in these countries can do a very great deal, something similar to what we are doing. I find striking parallels--and I had never gone through this analysis before--between the rural manpower situation in Pakistan, India, and a number of other countries. I have never thought about this before, frankly, because as I have said, the human element in the American agriculture, in the sense of the hired work force has been completely ignored. We have a Department of Agricultural Operators but not a Department of Agriculture.

MARK WHITAKER, Elk River Development Agency, Tennessee: How do you make the bureaucrat more responsive to the needs of the lower level?

MR. STURT: I am glad you gave me the opening.

In the first place, we have to create an environment in which the bureaucrat is truly responsible to the people, because one becomes "responsive" when one is "responsible to." The bureaucrats, certainly in West Pakistan, are not really responsible to the villagers. Therefore, there is very little sensitivity to the needs of the people, particularly in providing agricultural assistance and the like. Agricultural assistants are essentially a counterpart of our extension agents. Our extension agents in the United States have to report to a county board of supervisors. If they don't keep the county board happy--they're in trouble! This is not at all the case in Pakistan. The Department of Agriculture sends in an agricultural assistant. He has no responsibility, really, to the villagers. They can't fire him, they don't hire him. The structure is not there. It seems to me something has to be done about that. Currently, the power comes from above. Obviously, we have to create some way in which there is political power in the masses. They don't now have this political power in the real sense. Many of you may want to argue with me on this.

Another thing which is important is the fact that most of these workers have spent their lives trying to get out of the village. Some of them were never there in the first place, of course. Many of the bureaucrats who come from urban areas and get a job with government, are part of this second layer, really. There are really two cultural layers that are operating, but one is completely different from the other. Many of the workers have not related and are incapable, really, of relating to village people. Others, and I have worked very closely with these, that came out of the village have, in effect, said, "Look, I spent my life trying to get out; and now you are trying to get me back."

So, in many of our training programs, we made some horrible mistakes. I would say that the recruitment--Ed Schuler may want to argue with me on this--of the staffs for the two academies in Pakistan is one of these. I think we have hired the wrong people. We have hired people with Ph.D.'s, Pakistanis that have been trained in the United States. They went back to Peshawar and they were supposed to train agricultural assistants and others in how to go into the village, understand the people, and develop co-operatives, build roads, do all these wonderful things that we would like to see happen. And their lectures were absolutely sterile. And you can understand why.

MR. WHITAKER: You found the right person for Comilla. Is there a way to reproduce him?

MR. STURT: They threw away the mold. You see, he is a very unusual person and this thing in Comilla pretty much hangs on this individual, because he has succeeded in spite of having a staff that is quite sophisticated. We had the same staff in Peshawar and it was amazing to try to get these people to go to the village. You say, "Come on, go with me, I am an American and I don't know anything about this, but let's get out and see what is going on." You get this pained response, "Is this trip really necessary?"

I do not think we should be training these people in the United States. I think we should be training them in the Philippines and other countries that are just a little more developed than their own so that when they return, they are more apt to effectively relate to their own people. Many of these trainees go back and "pull the shade" on the American experience. It sometimes creates a negative reaction to America. I would suggest that in most of the revolts in other countries, you will find American-trained people waving the flags. We are responsible for it. It is a subconscious thing. We bring them here, help develop a taste for all the "goodies" in our society; they go back and the goodies are not there. We developed the taste, we did not show them how to satisfy it. So they go back and subconsciously, they become anti-American. Put a good foreign student back in one of these countries; you go back and see him ten years later and he is bitter. He is bitter at you, too.

So our training programs are all cockeyed. I do not think we have the time to go into this. Most people realize this, but we are still turning out trainees and the United States Government is still financing it.

MRS. RESH: I think what you say is so true, Mr. Sturt. I think when we have international visitors, we want to show them the best of everything, the best equipment, the most modern plants. I think it is very true that there is this bitterness, not just because later on there is an envy, but there is a real resentment that one nation has and the others have been given this taste and do not have.

Do we have more questions?

HAROLD DAVEY, Department of Labor: Mine is a question that is very short. I wanted to ask Mr. Vaniman who is doing research in commercial fisheries technology and how this information is being disseminated to the operators?

MR. VANIMAN: My bureau, of course, does research in all kinds of technology, whether you are talking about marketing or talking about developing gear and equipment. We developed a midwater trawl for hake, which is a great source of protein and fish protein concentrate, for instance. What we have done, our exploratory people have taken fishing crews and we actually demonstrate and show them how they can use the equipment on our vessel. We are not doing enough of this kind of extension activity, but we are doing more and more as we recognize our responsibility to do it.

MR. FRANKEL: I would like to speak to my colleague on the panel here (Mr. Sturt). I am in complete agreement with this point that we have been training the wrong people, we have been reaching the wrong people in these developing countries. We are not reaching the farmers, we are not reaching the food producers. It is because we have recognized this that we feel that even if a Peace Corps volunteer, working with an extension worker, can motivate this person and do no more than this, he does not have to have a great agricultural skill. The important thing is that an educated American is willing to go out and work in the villages with this co-worker and exhibit drive, motivation, interest, and desire--a great deal of which will come through to his extension co-worker or village co-worker.

I have seen in my years in Iran, extension workers who had this same feeling about going out among the farmers. They were office bound. They were shuffling papers. It was only after pairing them with sensitive volunteers, trying to induce a new point of view, that we began to see this movement out among their own people. And they build a lot of pride in a hurry. It is an amazing thing, that once you can start an interest of this kind, it builds on itself.

That is the reason why we are more concerned in our agriculturally-related programs with Peace Corps volunteers being sensitive to the people and to the culture than with their skill. Of course, if they nave the agriculture skills, we are happy to have this.

MR. WHITAKER: What happens when this support is withdrawn? We have this Peace Corps support, we have found one miracle worker in Pakistan. When this scaffold that is holding and propping a program up is withdrawn, then what?

MR. FRANKEL: We are hoping that our policy of working together with a co-worker--we do not like to even use the term "counterpart"--but with a co-worker over a period of two years, and sometimes four years, will leave enough impression and enough pride in his work and the desire to continue what he is doing.

Now, this is a hope, I realize that. We have not been in business that long, not Peace Corps anyhow, to know whether this hope is going to come true. That is the only way I can answer it at this point.

MRS. RESH: Thank you very much. Just let me say in closing that I leave this session with a sharp focus on a number of things that were said. I like this emphasis--I like the statement that we need to put more emphasis on the human factor in food production. I was interested in the fact that Mr. Sturt said that the greatest potential for food production lies in employer training. I thought this was interesting and I hope he meant that the training for the hired worker and the training for the farm family would go along hand-in-hand with it, because I think this is very important. I think we have to get employers to have a concept of training for the worker.

We identified some of the essential components and steps in training and learned not to depend only on the written word for training. I like the idea of using the generalist in the Peace Corps, a person who may not be agriculturally knowledgeable, but who has other skills.

The statement that was made about MDTA training for fishermen, I thought was very interesting because we have had very little MDTA training in agriculture. We have had some farm mechanics, but not too much. I think that the fact that there are problems in recruiting people into training and the fact that training is not the panacea, but that something needs to be done about this industry, is enlightening.

I liked our discussion about the need to reach those who need the training and how to motivate these people, and I liked the question about how to make bureaucrats more responsive to the needs of people. Perhaps bureaucrats need to have some sort of training program.

The statement was made that we ought not to be training technicians from less-developed nations in the United States, which I think is a very good point.

I want to thank the members of the panel, Mr. Vaniman, Mr. Frankel, Mr. Sturt, and Mr. Swingle, for their contributions this afternoon.

Thursday, May 4, 1967
PROBLEMS OF MANPOWER INCENTIVE, MOTIVATION, AND COMMUNICATION

HOWARD A. MATTHEWS: I am delighted to be here this morning. I regret very much that I missed what I understand was some very illuminating discussion yesterday afternoon. I am very interested in this subject, the War on Hunger, as it applies to underdeveloped and underprivileged people who live outside of the United States as well as those who live in it. I spent seven years in the great State of Alaska as Commissioner of Education. A portion of that time, I had the experience of working with some of the rural aboriginal groups whose cultural patterns are, I am sure, not dissimilar to those the experts who are going to speak with you this morning will discuss.

I think one of our greatest problems in innovating and communicating is, after we develop a notion, having somebody accept it. I am reminded of the old illustration given by Mr. Savrell in one of his lectures on hybrid corn along the southern part of the Rio Grande Valley here in the United States.

He tells of a group of 84 farmers in the valley who were put under a study and they had been raising corn in the old-fashioned way, using the old-fashioned strain which did not yield very much. So he had a lot of discussions with them on the increased number of stalks, the virtues of trying this hybrid corn, and eventually a demonstration plot was sown and it proved that they could double their yield.

Well, the next year 40 of the 84 farmers planted this hybrid corn and doubled their corn production. The second year 60 of the 84 planted it and doubled their corn production, but the third year only 30 planted it and the fourth year only three planted it. All but three of the 84 had gone back to the original strain of corn.

Now, what is the matter? The answer simply was that the hybrid corn would not make good tortillas. The dough characteristics were such that it broke apart when their wives tried to roll it, so consequently, they went back to the old-fashioned corn.

I mention this example just to point out how important many of the subjective factors are in determining what is a good food product and how difficult it is motivating people and getting innovations accepted.

That also touches on another very important point that I discovered in Alaska. And that is we know really very little about food habits of people. Apparently, they are established in very early life and people usually do not consciously eat for health reasons. They eat dishes because they like them. We discovered in Alaska that you can grow the most beautiful potatoes you ever saw, above the Artic Circle. Huge, lovely plants with a great number of smooth, fine potatoes, but you can not get the natives to eat them. In their culture you bury dead things in the ground and you do not eat things out of the ground --a certain mystique that must be overcome that has been inbred in them since youth.

We also learn from specialists in other fields. I learned not long ago that they used to plot the occurrence of pellagra in the South according to the price of cotton. If the price of cotton was high, there was not any pellagra because the farmers could afford to buy food. And if the price of cotton was low, there was not any pellagra either because the farmer did not plant cotton, he grew food. But when the price of cotton was marginal, then the inefficient producer would plant cotton and go into debt and when his credit became tighter the food supply became more restrictive and, as a result, we had pellagra.

On these and other factors, I am sure our speakers will build and illustrate for us the importance of the tremendous problem of communications.

We have this morning three individuals imminently qualified in this field of communications and also in the field of working with the underdeveloped people.

Our principal speaker this morning is Mr. Everett M. Rogers, who many of you undoubtedly know from his book, Diffusion of Innovations.

Mr. Rogers was formerly with the faculty of Iowa State University and the Ohio State University, he has been a Fulbright Lecturer with the National University of Colombia, Bogota, and has been with the staff of Michigan State University since 1964 as Professor of Communication. He devotes about half of his time on the campus in a teaching capacity, and about half of his time as Director of an AID research project on the Diffusions of Innovations in Rural Societies, and this takes him for six months of the year to Brazil, Nigeria, and India. It is a four-year study and it is now in its third year and it is concerned with communications in new agricultural, health, and family planning ideas to peasants.

He has written four books, including the one I earlier mentioned, and the remarks he will make this morning come principally from his forthcoming book on Communication and Modernization Among Peasants.

We will take just a moment to introduce the other two participants this morning and then we will hear from Mr. Rogers. We will have both reactions and statements from the other two gentlemen as discussants, and then we want you to become involved in the discussion.

The first person that you will hear after Mr. Rogers will be Mr. Gerald Winfield, who did his undergraduate work at Southern Methodist, his Masters at University of Illinois and Doctor of Science at Johns Hopkins. He was Head of the Department of Biology and Science at Chito University in China, in the late 30's and early 40's. He worked with the Office of War Information in China from 1942 to 1945, was with the United Board of Christian Education in Asia and in the late 40's until 1950, he had held other special technical and economic posts in Vietnam, Burma, and he has worked with the AID in communications. He is presently the Faculty Advisor in the Vietnam Training Center of the Foreign Service Institute.

During this time he has been intimately engaged in the problem of communication resources media. He is involved in communication processes agencies concerned with the problems of motivating people to change their behavior.

Our second discussant following Mr. Rogers will be Mr. James Kelso Dent who lives in the State of Maryland. He is a product of the Pennsylvania public schools, finished his undergraduate work in Pennsylvania and has his Doctorate in Psychology from the University of Minnesota. He is the author of quite a number of research and scholarly papers. He has been an Assistant Professor, a Lecturer, and a Teaching Assistant in Business Administration. He belongs to a host of professional and learned societies and so we are delighted to have him with us this morning.

Without further introductions from me, I will turn the time over to Mr. Rogers.

MR. ROGERS: When I was in graduate work I was particularly interested in India and always thought that I was going to be an expert on the problems of India. I studied everything I could about India, talked to all the great Indianists I could, and then bided my time until I got to India. It took ten years actually. I finally got there some years ago as a consultant to UNESCO and I was all ready to go out there and see some of these real Indian villages as soon as I got to Delhi.

When I landed, I was met by some UNESCO officials with whom I was to cooperate; two weeks later I was still talking to government officials in Delhi. I was getting to know them very well, but I had yet to see an Indian village. So finally, at the end of a couple of weeks I said, "Now look, on my own time I want to see an Indian village. That is why I came here."

So one of my UNESCO friends took me in his car on a Sunday afternoon to see a typical Indian village. We rode on a highway outside of Delhi about 30 or 40 miles and parked the car along the highway. Then we walked at least a half mile or a mile back off the road. Most of you have probably visited an Indian village; the first one you see you never forget.

This one had all the usual things which I have come to know since they were somewhat typical--cow manure drying on the walls, the mud huts, and the dust, always dust. Children dying in the sunlight. It was a nice afternoon and the villagers followed us around their village. You never forget it.

Anyway, we were just ready to go back to the car and to return to civilization when the village chief said, "Oh, but you have not seen our school." So he took us to see the school. Well, it turned out to be a bit of a disappointment. It was just another mud hut with a straw roof and no door and dust on the floor. But when we stepped inside and as soon as my eyes adjusted to the darkness, I saw about the last thing in the world I expected to see. This dirt-floored, thatched school had a 24-inch television set! So I said, "Say, what is with the TV set?" And they said they did not know. They were part of a foundation-sponsored experiment, that is all they knew.

One moral is the extreme outreach of mass media in countries like India today. In fact, it has some funny consequences for those of us who like to study the impact of communications in developing countries. It is sort of like anthropologists who are scurrying around these days trying to study Eskimo tribes and others before they are all gone. Likewise, we have got to get there fast or it will be hard to study non-mass-media-saturated societies. I think it also is symbolic of one of the things I want to talk about today and that is the extent to which mass media communication can perform some of the massive jobs of communication and motivation that we need in developing countries.

I want to do about six main things this morning. I think, first off, it is quite appropriate that our agenda include a very brief discussion of what the mass media can do and cannot do in development. I will be very brief. (See Chart A)

I think secondly, we have to say a few words about the two-step flow model of communication. We will talk a bit about who is in the mass media audience in the less developed countries. Fourthly, I want to argue that personalized professional communications such as from change agents is not enough for the job we need done; it would take too long and be too slow. We should not give up on it, but it is not going to get us where we want to go fast enough.

So we have to use mass media, but mass media alone are also not enough, so we have to use those in rather new and novel combination. I want to draw rather heavily on some studies of the effects of mass media forms.

First off, let us take a look at what the mass media can do and cannot do, and what the mass media are like, particularly in contrast to those with interpersonal communication. (See Chart B.)

By mass media we generally mean any channel of communication which is interposed between the source and the receiver, any time there is a piece of machinery of any kind, a transmitting device of a mechanical nature, which comes between the two. It may be film, it may be newspapers, it may be radio, TV, whatever. And, in general, non-mass media communication is face-to-face or interpersonal or WOM (Word-of-Mouth).

One of the difficulties of mass media communication is that it is largely one-way. Personal communication is in general two-way. There are some things we can do to make mass communication two-way, which I am going to talk about later, but if mass media alone in its pure form is used as a communication channel, one of its limiting qualities is that it is one-way.

There are some advantages, of course, to mass media channels. For one they can rapidly reach a large audience. I can cite some evidence of that from studies of the diffusion of major news events, as the Kennedy assassination, Alaska statehood, Taft's death, Roosevelt's death, and other major news events with which the mass media generally gets to vast audiences very quickly with high accuracy.

One of the troubles with interpersonal communication is that it is very inaccurate, as you know if you ever listened to most rumors.

Then there is the selectivity processes in communication. There is selective exposure, selective perception, and selective retention. The mass media have trouble with this process. When a Democrat is listening to a Republican leader making an official speech, he is likely to turn off the mass media program. If it is interpersonal communication with a peer about a political matter with which he disagrees, it is harder to turn it off. So mass media, in general, cannot as well overcome the selectivity processes.

The understandability of mass media is often low. It is difficult to reach a mass audience with a great range of heterogeneity in it. One of the characteristics of developing countries is that the audience is indeed very heterogeneous. I would guess the understandability quotient of most mass media content by peasants is very low, when they listen to programs beamed largely from urban sources. Also, the amount of feedback is higher with personal, much lower with mass media.

Lastly, mass media seem to be much more effective in information transmission or knowledge creation, than where we seek to persuade or change general attitudes. A sweeping generalization of a great number of studies both at home and abroad is that it is WOM which persuades. (See Chart C.)

In the early days of communication research and writing and speculation in the United States, we heard a great deal about the so-called Hypodermic Needle Model. Now, the Hypodermic Needle Model is very simple. It appears now too simple a conceptualization of what media can do and can not do. There were some good reasons for having this Hypodermic Needle Model in our minds, such things as the war that the Hearst papers started with the sinking of the Maine, the rise and fall of Hitler Germany, books about the hidden persuaders on Madison Avenue, and in fact, Orson Wells' old Halloween show, "War of the Worlds," which some of you, I guess, remember hearing. All of these help give us the notion that the mass media could be like a huge hypodermic needle, that one author has described as, "Pecking and plunging away persistently at a mass audience, injecting a virulent message in each of us." The notion was that the mass media were like the psychologists' S-R model, that the media was stimulus and the response was direct and immediate.

It took us about 20 years before we got over that model. It was largely rejected by a rather classic study in communication usually just called the Erie County Study because it was done in Erie County, Ohio. This study largely led to the rejection of the Hypodermic Needle Model. The study was done by Paul Lazarsfeld and his colleagues of the 1940 Presidential election. Now, 27 years later, we have made many improvements over the two-step flow model that came out of that study.

Lazarsfeld's study in 1940 was designed to study the effects of mass media in voting change. He interviewed a panel of Erie County voters at monthly intervals for several months before that election. Trouble is, he found little vote changing as a direct result of the mass media.

But, Lazarsfeld's book, called The People's Choice, posits the two-step flow communication. He points out that the media tended to have their effects on certain few individuals who then did change votes via personal influence or communication with their followers.

It is called the two-step flow model because the first step is from the mass media to the so-called opinion leaders, members of the audience who are particularly attuned to the mass media. Then in the second step of the two-step flow, the opinion leaders through social relationships with their followers (or nonleaders), tend to pass along messages that they have received from the mass media. This is a very simplistic notion of the two-step flow. It, of course, led to the total demise of the Hypodermic Needle Model.

The two-step flow itself has been improved on a great deal in the last 27 years of research. It is one of the basic models we are testing in our Diffusion Project in Brazil, Nigeria, and India and we find there is a two-step flow. The trouble is, it is not just two steps. Opinion leaders communicate with the followers who, indeed, in the next generation of time simply become opinion leaders about a new idea, and they, in turn, influence other people. So it is not just two steps. In fact, today it is more often called the multi-step flow or n-step flow, meaning you can insert any number you want.

But there is a passing along of information from the mass media to leaders to followers.

In the remarks that are going to follow, I wish you would keep this general notion in mind because it is essential to most of what I am going to say. That is the general notion of the two-step model.

Now, one of the findings from the last 27 years of study is that the opinion leaders are often more competent than the followers. They tend to be more knowledgeable, more innovative, have higher social status, and whatever the issue being discussed, opinion leaders generally know more about it than their followers--but not too much more.

In most of the villages we are studying, some 300 of them in the three Project countries, the innovators or the first farmer to use new agricultural technology seldom are highly respected or followed by the rest of the villagers. They, in fact, are often deemed as social deviants and various funny terms are used to describe these innovators. The point is that these innovators are really too far ahead of the average villager to serve as a useful model for him. I am not saying that they do not have an impact. They have a very tremendous impact in creating awareness or first knowledge of new ideas. But they do not convince, that is the point.

Opinion leaders are slightly more competent than their followers, but not too much so. (See Chart D.) There are opinion leaders in each strata of society. A finding of studies done among urban poor in the United States, for instance, is that there are leaders indeed, informal opinion leaders, among the poor.

We seldom find opinion leadership skipping across social levels. We seldom find someone, for instance, low on the pecking order going to someone much higher than he or, vice versa, someone going downward to someone much less competent or of lower social status than himself. In a free choice situation most individuals interact with others much like themselves. This acts as a powerful impediment to the diffusion of ideas in peasant villages and in most other settings. We will return to the problem later.

But the point is, most communication about technical innovations occurs horizontally, and not vertically, in most human settings where people are free to interact with whomever they want.

We will return to the two-step flow and the multi-step later, but now let us turn to one of our next points on our agenda. I think it is point number three and that is, who is in the audience? (See Chart E.)

There are, in fact, five studies here. We have the five main mass media listed: newspapers, magazines, radio, TV, film. The percentages show the percentage of rural respondents who are in the audience for each medium.

You see some similarities. One of the similarities, of course, is that the medium that reaches the largest audience in general is radio, which is no surprise to most of us who know peasants. The print media, newspapers, and magazines, generally reach rather small audiences, particularly in settings such as India where literacy among villagers is quite low. So print media obviously is severely limited by illiteracy.

Difficult to see, but contained, in a sense, on this table, is the so-called centripetal effects of Daniel Lerner. This means, to put it simply, that a peasant who is exposed to one medium is also likely to be exposed to another medium. In other words, the radio audience of, let us say 34 percent in the Indian study, also includes almost all of the six percent of the peasant population who were in the newspaper audience, the eight percent who were in the magazine audience, and those who were in the film audience. This overlapping of audiences of the mass media implies that there is also a huge audience of completely unreached peasants--in this particular part of India about 65 or 66 percent of all peasants. The one-third who are reached by one of the media are generally also reached by one of the other media. That is, of course, an undesirable implication if you want to reach a large audience of peasants with fertilizer and fertility programs.

Let me just take one evidence of the impact of mass media. (See Chart F.)

This is a finding from Phase I of our Diffusion Project in Nigeria where gleefully we have data in this chart from 71 Eastern Nigerian villages. These are data from 948 village leaders. Remember these are the most progressive members of the 71 villages and these are the most progressive villagers in Eastern Nigeria. The 12 agricultural innovations are improved corn variety, fertilizer, and other food-increasing innovations.

About half of the peasants really did not know about these innovations. The mass media played a very minor role in informing the 50 percent who were aware of the innovations.

Only five percent mentioned the mass media. You can see that the most important channels that create awareness of these innovations tend to be what we call technical WOM, meaning almost entirely extension agents, local level change agents. That is, 28 percent of the awareness was created by those extension agents.

Do not try to extend these findings to all the underdeveloped world, all of Africa, or even all of Eastern Nigeria. Our 71 villages were all villages where extension workers were. The majority of Eastern Nigeria does not have extension workers, but these are villages that did. Yet only about 28 percent of the farmers reported awareness from extension agents and about 18 percent from interpersonal communication flow which was really sort of the second step in the two-step flow.

The main thing I wish you would remember from the chart and one of the main reasons I showed it is that when you ask farmers in developing countries where they learned about specific new ideas, usually the mass media is low in importance. Now there are some reesons for that. Remember what it says and what it does not say.

It does not say the mass media cannot do it. It just says they have not done it yet.

There are various reasons why mass media channels have not done the job in underdeveloped countries that they do very well in the United States and in countries like the United States, that is, create awareness of knowledge about new ideas.

I think there are at least three reasons why these findings are so different in less-developed countries than they would be in Ohio, for instance or Iowa. One is irrelevant content.

Obviously, peasants cannot learn about agricultural innovations unless such information is in the media. But the media in the less-developed countries are very urban-oriented. The communicators themselves know little about peasant life. The first point then is the agricultural content is not there.

Secondly, there is the illiteracy barrier much talked about for print media.

A third barrier is the factor of cost. The cost barrier. To the receiver, I mean. Most peasants of the world cannot afford a daily newspaper or even a weekly newspaper. It just is not within his range of buying power, and, needless to say, the cost of a TV set is well outside of his range.

Now there are ways to solve each of these problems. There are ways around the content problem, there are ways around the illiteracy barrier, there are ways around the cost barrier and one of the things I would like to do after a brief interlude, is to present a way that these barriers can be partially overcome.

First, though, let us look at an alternative way. Look at the 28 percent who became aware of the innovations through interpersonal technical channels. That is, through the efforts of a change agent. The change agent is the extension agent, the community development worker, the public health nurse--the individual who contacts the peasant audience at the village level. He is usually a representative of some government ministry in most developing countries, and his role is that of liaison between the professional system of the government, the change agency and his clients, the villagers in most cases. He is supposed to span those two worlds and interpret the meanings to his clients, who are completely different from the professionals, the knowledge elites in the ministry.

One of the things I want to destroy here is the hope that change agents are ever going to be enough, at least in large underdeveloped countries. And even if we could so obtain awareness of innovations through change agents, that is not conviction.

Nigeria is a major African country, aidwise, and has been for five years. We have put large resources into the training of change agents, and the British did that for some years before we got there.

Today there are about 5,000 change agents in agriculture in all of Nigeria, for fifty million people. That is a ratio of one change agent to every 10,000 villagers.

How would you like to have to convince 10,000 villagers that they should use some new ideas?

I am not opposed to change agents. They are very important, they are doing fine work, but there just are not enough of them and there are not going to be enough of them. No matter how highly motivated they are, no matter how well-trained they are, there are not going to be enough of them. Even if there were enough of them, they would still not do the job because they do not have sufficient credibility. In general the villager is very distrustful; he has been conditioned by centuries of exploitation not to trust anybody from government. Whenever he did, he lost a son to the draft or his income to taxes, and as a result, he does not always trust them.

Thirdly, is the matter of technical competence of the average change agent. We are not thinking of a college graduate, or even of a high school graduate; we are thinking of somebody with five or six years of education. We expect him to carry a technically competent load of messages about innovations. We ask quite a bit.

The whole notion of fertilizer is not a simple idea. Anybody who has ever tried to explain fertilizer to a farmer who never saw it before realizes that.

The main point is that the change agents we have got, if used in a somewhat different role and combined with the mass media, could do the job. In fact, it has been done in a few locales and I want to cite those examples.

Let us start with the finding from a communication study done in India by Paul Neurath. About ten years ago, he was in India and was involved in a study of radio farm forums. UNESCO was interested in what could be done to set up little discussion groups, of ten, fifteen, or twenty villagers to listen to a radio for a half an hour, shut it off, and discuss the program. It was a way to use the two-step flow, to combine the mass media, the first step, with interpersonal discussion, the second. But it was different from the two-step flow naturally occurring, because you made it happen.

One of the findings of the Neurath study deals with knowledge of innovations. The innovations in this case were new agricultural ideas, fertilizer, hybrid corn, and so on. Neurath studied three types of villages: (1) villages with no radios; (2) villages without forums, but with a radio; (3) villages with forums where they had radios and listened to the programs, shut them off and discussed them. They did that one night a week for six months. (See Chart G.) Neurath interviewed these respondents before the radio forums started and at the end, in 30 villages in each of these three groups. Neurath found that people in the forums learned a great deal.

The people who just listened to the radio programs, but did not discuss the contents, just had the first step of the two-step flow and learned something, but not very much. Those villagers who did not have radios somehow learned, but not much. In any event, Neurath's findings indicate that the forums do have a "big bang."

One of these findings was particularly intriguing to us, and I want to call it to your attention, the so-called "pooling effect." (See Chart H.) Take the case of literacy; there are literates and illiterates in these forums. It turned out on this knowledge-gain score that the illiterates learned slightly more than the literates. When you put elites and nonelites together in a forum, it appears that everybody rises to the highest level. It is the pooling effect. In any event, the findings suggest there is a tremendous amount of knowledge gained in a discussion after the media message, after the program is shut off.

The essentials for any kind of mass media forum program are about five as I see them. (See Chart I.) First, the programs have to be relevant to the listeners; if the content is not there, they are not going to do much, so the program must be relevant.

The second thing is the post-program discussion. This is where the persuasion or motivation or attitude change occurs. That is consistent with Chart B which showed what the media can do and cannot do. Mass media can communicate or transmit information but cannot pursuade or change minds very well. That is why you have the discussion following the mass media message.

The third point is feedback. These forums that meet weekly have a secretary who keeps notes of questions for clarification, things they do not understand, and their decisions on common needs, for instance, kinds of fertilizer they are going to need next year. Those queries are mailed in to the radio station each week. This is a tremendous amount of feedback, and it is the kind you generally do not get with mass media alone. You do get it with mass media plus forums. Feedback is one of the greatest benefits of forums. One reason the programs are relevant is that they are getting feedback, and at the beginning of the program on the following week, they answer questions of clarification from the week before.

Fourth, the forum should include the opinion leaders. When the forums are set up, even though you may only have one forum of 15 members in one village, if you have 15 opinion leaders in the village in the forum you are capitalizing on the two-step flow of communication.

Fifth, you have to maintain forums, to service them. If one does not check up on them once every couple of months, they will not be there. The battery has run down in the radio or the radio gets stolen by somebody or the forum stops meeting, so it takes some servicing. Some forums begin on their own in these countries. Villages hear that another village has got one and they start one, but for forums to last and prosper still takes some attention.

In our closing moments I want to list some of the countries in which forums, either teleclubs or radio forums or print forums are under way. (See Chart J.) We have them under way in Nigeria and Brazil as part of the Diffusion Project right now. Ghana tried them two years ago.

I want to comment on just two forum-like communications systems which are not quite radio forums, yet have the essential elements of them. One of these is the case of the radiophonic schools in Latin American countries. They began in Colombia about 10 years ago and they recently have been studied in Honduras and El Salvador by Rhodes and Piper. These radiophonic schools are really forum-like events in that a group of 10 or 15 peasants listen to a radio program and then discuss the content. One of the purposes of the radiophonic schools originally was to create literacy, and there are claims that they made millions of literates in Latin America. The new literates in the radiophonic schools seem to believe everything they read.

A second forum-like communications system in Communist China is the "struggle sessions," etc. About 70 percent of the population of Communist China is involved on a weekly basis in some type of forum-like activity, in mass media forums. More than likely, they are reading forums where the leader reads passages from printed literature prepared for this purpose.

MR. MATTHEWS: Mr. Winfield?

GERALD F. WINFIELD, U.S. Department of State: I would like to take just a few minutes to extend this very excellent summary of research and opinion to which I very heavily subscribe and have subscribed for many years, even before the research pointed to its being necessary and justified.

I would like to extend this theme in two directions. One of them is the reminder that what Mr. Rogers has been talking about this morning has been strictly within the framework of the knowledge component alone. With respect to behavior change and the actual changing of the process of producing food, I would like to remind you that this is only one of probably an array of ten major factors, all of which must come together, all the way from the technology of hybrid corn at one end to the residual of attitudes beyond the knowledge factor. Mr. Rogers was talking about knowledge and attitudes. On the other end of the scale are all of the factors of transportation and the availability of the actual requisites and managerial skills and a whole lot of other things in this total picture. Backing up each of these ten major factors that go into a behavior change model, there is an echelon of institutions and within each one of those institutions there is a duplicate, at its appropriate level, of the kind of communications pattern that has been described. All these factors must be considered if we want to become aware of the complexity and the quantitative effort that are involved in really getting people to change their behavior in adopting better food production practices.

Mr. Rogers has focused on the last two or three steps in the chain of movement from the scientific researcher who discovers the new technology, to the farmer who actually uses it. These are extremely critical and we in AID and the people working in the programs around the world have neglected this part of the chain more than any other part of the chain, so what Mr. Rogers had been talking about and what his research project is focused on is a very crucial matter, and there is no question that this mixture of electronic media, including in many places, television, can begin to put the image in along with the spoken work into these patterns. This step is absolutely necessary if we are to close this gap.

Another direction in which I would like to extend this theme is toward the content of the knowledge that we are trying to diffuse. This knowledge is made up of four component parts. The first of these components I call basic knowledge, and this relates to another psychological principle which I think is very important for all human beings, and that is that nobody is willing to act too close to the limits of his knowledge. The more he is under pressure the more he must be prudent about what he does, and the peasants who cultivate most of the food-producing land of the world in the underdeveloped countries have been in this category for several centuries. In most cases they are people who, by hard experience, know that they dare not operate too close to the limits of their reliable, credible knowledge.

One of the most important facts of basic knowledge in a society is that it gives the extra level of knowledge of the total situation that makes it possible to get some knowledge beyond new action points. We assume this in our society because the educational system provides such knowledge on a general basis and at a sufficiently high level which permits our programs to operate within the psychological security it provides. But when you get to a society where 12 percent of the public is literate, it is quite a different matter. And if you are talking about the introduction of fertilizer, you have to teach the farmer a few basic things about fertilizer before he has a basic knowledge component.

He needs to know that there are such things as nitrogen, phosphorous and potassium, that they are water-soluble chemical substances, that they are taken up by the root of the plant, that they have to occur in certain specific quantitative ratio because if you have lots of two of them and a little bit of a third, this little bit of a third is going to determine how much the other two are used. He must understand that plant growth cannot occur without these substances.

If you were an illiterate farmer and I was standing here trying to teach you what a water-soluble chemical substance was, I would have quite a task on my hands. I could not do it verbally at all. I would have to resort to a series of demonstrations and perhaps even a field demonstration--actually growing some plants in order to make this real. This first component is basic knowledge. We are so used to assuming basic knowledge that we ignore it, but it is one of the fundamental prerequisites, not only of awareness, but of the psychological security to act on that awareness.

The second component goes into the knowledge factor itself and is what I call economic knowledge. It may include some knowledge of economics eventually because one of our problems is getting people to change their economy from a barter to a money economy. I mean by economic knowledge the knowledge of the specifics in a situation which makes it possible for him to make a hard-headed decision as to whether the new practice is going to be to his advantage or not.

The kind of knowledge he needs in connection with fertilizer is first of all, where he can get the fertilizer. Second, he has got to know how much it is going to cost. Third, he has got to know how much gain in output that fertilizer is going to give him, and he is not going to read this from a scientist's chart from an experiment station 150 miles away. He is going to have to see it in a demonstration. He is going to have to have a gain of something better than 30 percent. It has got to be 50 to 100 percent if it is going to get quick results, and it has got to be sustained over a long period of time if it happens at around 30 percent.

Then, of course, he has got to know what is going to happen to prices when the increased yield comes along, and he has finally got to know whether he is going to get the benefit or the landlord is, or the tax collector or the money lender.

These two components, basic knowledge and economic knowledge, are really the ones that are at the base of the motivational factor toward acceptance.

The third component that goes into the content of what is communicated is how to do it, and all too frequently this is where we begin. We jump right in and start teaching people how to do something without bothering about their basic knowledge or their economic knowledge, and then are mystified when they fail to act.

The fourth component is what I call inhibitor knowledge. This is knowledge that is already in the farmer out of his religion, out of his social relationships, out of his own personal experience. Maybe he tried something two years ago at somebody's suggestion and it failed completely--he is not about to try anybody's new idea for a while. The inhibition will still throw on the brake and prevent the change from happening.

In terms of the content of the knowledge factor you have these four components. If you run into an inhibitor, you have to learn specifically about it, and then maybe go back and modify something to neutralize a problem with respect to that inhibitor so that you get the brakes taken off the action component. The burden of what I am saying is simply that the picture is altogether as complex as Mr. Rogers has presented it, but there are overriding echelons which carry the same degree of complexity and make the problem really rough.

I would like to end by saying that I believe that, next to the problem of managing atomic destructive power in the world, the most complex and difficult, hard-to-solve problem that confronts the human race for the next 50 to 75 years is the problem of this universe of the untutored in the world--how we help them close the gap between where they are in their traditional society and where they must move in the use of modern, scientific solutions to extremely complex problems. These are problems of food production, family planning, nutrition, and ultimately, some further things in basic sanitation and health. This is the most complicated problem that the human race has before it today and the quantity of effort we are making is nowhere near commensurate with it.

JAMES K. DENT, U. S. Department of Health, Education and Welfare: The basic principles Mr. Rogers outlined are sound, and I could tick off a dozen studies done by psychologists over the last 30 years which would confirm his findings right down the line. For instance, the importance of group participation, of commitment to a course of action in the presence of others. It is interesting that even for casual groups, for example, if you get 8 or 10 people together who have never seen each other before, who will never see each other again, and get them to discuss problems and to commit themselves on the problem--if you go back later, you will discover that these people have been more likely to take action than those who were not in such group settings even if they received the same kinds of information.

If we were to extrapolate a little from Mr. Rogers' work, we could say that although he is working at the level of information, we could be pretty sure that it will carry over into action, too. And it is the kind of systematic data which he has presented here this morning that makes it impossible for anyone to argue this point.

I would say that this approach is going to work very well until we run into situations where there is strong emotional loading. An element in emotional situations is what psychologists call "basic personality." This is something that develops very early in life and is quite resistant to change.

Let me illustrate. We want to innovate some change in what some people regard as an underdeveloped portion of this country and the change we would like to initiate is that Negroes will serve on juries, and suppose we form a number of forums of southern whites to discuss the question of whether Negroes will serve on juries. Now I am quite sure you know what will be the outcome of these forums. What you will get is a solidification of opinion and action in just the opposite direction.

It is not my intention to discourage you, but I think that we need to understand these basic personality factors very clearly. Let me state first that not all prejudice toward Negroes is emotionally held. Some is quite rational, deliberate and calculated exploitation, but some prejudice toward Negroes is very definitely held at the emotional level. It is something that is ingrained from a very early age, and the few studies we have had suggest that this type of prejudice is not approached with information or with learning or with discussion. The process seems to be more like one of therapy where the person is allowed to get rid of all his feelings about this matter before he can entertain other possible solutions to the problem.

Why is it that this gap between the overdeveloped and the developing nations seems to get worse? What is working against us here? What makes the problem so difficult? Why is it such a resistant thing?

One rather solid finding we have is that need-achievement is correlated positively with economic growth and technological change. On need-achievement we now have years of good research--how it relates to cross cultures, growth of cultures, growth of society, economic growth, to child bearing practices in the family.

The Hindu joint family in India is an ideal type. By an ideal type, I mean it is the one that most nearly conforms to the norms, the religious norms of society and as such, it has an influence. The joint family has a joint kitchen, joint property, joint purse, and includes all of the matrilineally related people, that is the sons and their wives, and their children and several generations of them all under the rule of the pater familia. If one of these sons makes 400 rupees and one makes 100 rupees, the pater familia says what the distribution of the money will be, and he will also choose the husband of the granddaughter. There is a definite dominant hierarchy.

Child-rearing--I will talk about male child-rearing; female child-rearing is very different and, if we were talking now about control of population, I would talk about female child-rearing, but we are talking about innovations and we will talk about male child-rearing.

Males are valued children. They are loved, they are cared for. They are picked up when they cry. There are enough women in the household that a baby does not cry very long. Children do not want for things, and they are not frustrated, they are not required to make decisions. Decisions are made for them.

The basic personality that results from this is one of positive self-image. We actually have a little systematic data on this now, of the self-image of these people, which incidentally is a plus. This is the one plus I can report so far as need-achievement is concerned. Need-achievement in children is developed by support, not by criticism.

The negative aspects here are the dependence upon paternal authoritarianism. There are many studies showing that need-achievement is damned by paternal authoritarianism. There is even a suggestion that the rapid rise in need-achievement during the inter-war period in Germany was a function of the fact that a whole generation of fathers was away from home during the First World War. In other words, the German people were relieved of what had been traditional paternal authoritarianism.

There is a clear set of rules in the Hindu joint family, clear identity, and no need to explore, which again is inimical to the development of need-achievement. There is no challenge in the environment, there is no frustration in the environment, there is no need to conquer an environment, and there is no consideration even that the environment might be hostile, that it has to be dealt with.

I do not advance these ideas as being the only factors. These are only additional factors that you have heard, and are all very important. The situation is not nearly as bleak as this particular presentation would make it seem. I do think though it is essential that when we assist institutions of these kinds we know what we are encountering. We do not really have the kind of data that we need to confirm the kinds of things I have told you. I have extrapolated some, particularly the kind of need-achievement that would be developed in the Hindu joint family. We do not have systematic data, to my knowledge, on it right now.

We need to understand this type of basic institution and to know how difficult a situation we are dealing with. I would certainly hope that among various portions of the program would be local support for research into the kinds of basic personality structures which are present in these various countries.

MR. MATTHEWS: Thank you, Mr. Rogers, Mr Winfield, Mr. Dent.

I was struck during Mr. Rogers' remarks on the use of the group leader or the intermediary, by a comment made by a friend of mine who recently came back from visiting the Middle East. He told of a trip to a Moslem village where wheat was once grown. The principal cash crop when he was there was marijuana, so he asked the village headman, who was educated, why he was raising marijuana instead of wheat, particularly when it was illegal to raise marijuana and it was injurious to people. And the answer he got was that the wheat that the United States has sent over there had so depressed the local price that the village could no longer raise wheat and make a satisfactory profit. What he really meant was that there was more profit in marijuana than there was in wheat and that he could use the presence of the United States wheat to excuse himself. Perhaps in addition to the other ten implications of bringing knowledge to bear on change in people and change in diets and motivations, there are some political implications that tend to influence or direct the other resources we have.

DUDLEY DAVIS, Department of Labor: Mr. Rogers, you referred to the business of feedback in the forums, but I wonder if you could tell us a little bit more how you get this feedback. It seems to me an onerous task for the peasants in India to write a letter, if that is what they do, to the radio station once a week.

MR. ROGERS: That is a good question. Rather than India, let me take the Nigerian case because it is one of the activities of our AID-sponsored Diffusion Project. We have convinced the government of Eastern Nigeria to set up a system of radio forums. The first ones were launched some weeks ago, and the goal is to have one in each of the approximately 50,000 villages in Eastern Nigeria in a year or so.

What they have done is to set up a feedback unit. The Eastern Nigerian Broadcasting Company has a department with an easy-to-reach post office number and each radio forum is supplied with a secretary's book. He usually writes about two or three paragraphs of notes on the meeting, recording the main decisions they reach, and often these are in terms of whether they like the innovations promoted in the program or not.

If there is a question such as, what type of fertilizer should we use in our village or where shall we go to get it, they get an answer back from the Ministry of Agriculture, written by an expert. Of course that takes time and it costs money to do it, but they are answering questions that are in people's minds and that are important. In India my impression is that villagers really like this. They really have grown to like this thing because it makes them think they have some control over something, particularly when they hear their question answered next week. Sometimes their forum is identified by its name and number. They really think they have a direct line into central government, and to some extent they do.

W. E. HARVEY, Department of Agriculture: You spoke, Mr. Rogers, about the Neurath study and knowledge gained. What I am interested in knowing is what techniques were used in measuring the knowledge gained?

MR. ROGERS: Let us say fertilizer was one of the innovations they were promoting in these forum programs. One of the questions might be, what are some of the main advantages or disadvantages of fertilizer,or better yet a more technical question, what are the three main kinds of plant food?

MR. HARVEY: Perhaps he knew that before the forums took place.

MR. ROGERS: But that was also measured. They interviewed the villagers before the forums started and again afterwards, so these scores are "gain scores," the amount of knowledge gained. You are right, of course, a number of these things were known by at least some of the villagers.

EUGENE McDONALD, Human Resources Development Corporation: I would like to ask a double question to Mr. Rogers. You mentioned a credibility problem that faces the change agent, and I wondered whether that might not exist, a fortiori, with the impersonal black box in that forum-type program; and secondly, whether that is true or not, have you found that the effectiveness of the forum might be dependent upon the initial introduction of a change agent the first few programs, or as an alternative some kind of preconditions of the opinion leaders who are participating in the program?

MR. ROGERS: Let me try to answer the second question. If I can reword it a little, I think it asks how much of the effectiveness of the programs is due to novelty. Isn't that about it?

MR. McDONALD: Yes, in a sense and also on the other side of the question, how much of an inhibitor factor, in accordance with Mr. Winfield's comment, is the presence of this new strange technological device?

MR: ROGERS: Yes. To be completely honest, we really do not know. We do know there is a huge novelty effect in less-developed countries caused by such new media. When a man first gets a radio, it is just like when we first got a TV set. It has a great novelty effect. Probably likewise there is a considerable novelty effect to the forum whether the radio itself is new to the village. Most villagers today have had a radio a long time, so the radio itself may not be new, but the forum at least is new. The notion of a forum is fairly new, but when you think about it, the forum idea is quite a part of most village cultures. At sunset when work is over, in pleasant weather, you find most villagers sitting around under a banyan tree, and it is usually a well-worn place in most villages of the underdeveloped world, where a forum-like discussion goes on, but without any media input. So in a way, I think the forum idea is consistent with the culture of most village life. The new thing is listening to a media and then discussing it. Your first question dealt, I believe, with the credibility of the forum, right?

MR. McDONALD: Yes.

MR. ROGERS: If a change agent has low credibility, the media will also have low credibility. Undoubtedly that is true and there is considerable evidence in these forum discussions of low credibility in the media itself. The villagers do not believe what they here until they discuss it and somebody in the forum says, "Yes, that does work and I know; I have a cousin over in village X who does use fertilizer and it does work for him."

I do not think credibility is so important in knowledge gained, media can do that, but I think where credibility is important is in persuasion. And that, of course, is in the discussion set off by the media message: it is not dependent on the media message.

Many of the radio forum programs include a village character who adds credibility to the program. As an example, in India he is a favorite national hero. His name in Hindu corresponds roughly to "the old villager." He is an old traditional man with a high voice, and he is on most of the forum programs. Whatever the expert says the old villager cuts in and says no, that is not so and laughs at him and misinterprets the statement. Villagers identify with this so-called old villager. He adds some fun to the program, makes it a little dramatic. It is a nice show really, and it also gets some good licks in for credibility. It is presenting two sides rather than one side of the argument.

ROY DAWSON, FAO: My question is on credibility too. How much faith can you put in the information gained by the forum?

MR. ROGERS: All right, I guess that asks the question, how honest are our peasants in providing research information?

MR. DAWSON: How knowledgable, really?

MR. ROGERS: In other words, when the studies are done in forums can they answer the questions accurately? Well, we have to be very suspicious and cautious, of course, about data gathered from personal interviews with peasants. They are very hospitable and courteous and they want to be very helpful and they want to tell you what they think you want to know and of course, that means they often tell you dishonest things. It is the "sí senor" complex: the peasant agrees with everything you ask him. It is a huge problem. However, my guess is that most of these data are fairly correct. They are clearly not precise to the third decimal but my opinion is that they are not worthless.

MR. DAWSON: How do you trigger them into action, once they have gotten ability established?

Mr. ROGERS: I will tell you it is nice that question was saved until last, Jerry Winfield really ought to answer it. But I will try. There are clearly three steps, knowledge, attitude change, and then behavioral change, and that is, of course, what we really want. In other words, getting the job done. The Neurath study only included knowledge. In more recent studies there has been longer follow-up, more than six months. Our UNESCO study in India is a two-year study and we are going to do another year and a half later, so we will find out what they adopted over three and a half years ago.

But the evidence today suggests that over a very short range of six months to a year there is a very small amount of behavioral change or adoption as a result of forums. There are some changes even in that very short time, particularly with innovations that are crop-year connected. When one does a longer range study like a two-year study, we do find not only very large knowledge gains and sizable persuasion and attitude change but even more adoption or behavioral change.

HENDRICK MUGAAS, Department of Labor: Is behavioral change accumulative? In other words, if some peasants in a village do change, does it trigger the village?

MR. ROGERS: Yes, indeed it does and that of course, is one reason I think we ought to emphasize one important point: we are not talking about change on the part of the forum members, we are talking about change on the part of the whole village. That is a tougher question. That is why I think we really need three years, ideally five to ten years to determine the long-range effects of the forum program. The forum members may adopt the next year, but then if we got the right people in the forum, as your question implies, that ought to lead in to five years to adoption of the same idea throughout the village.

MR. MATTHEWS: I am sure you will agree with me that the presentations of Mr. Rogers, Mr. Winfield, and Mr. Dent have been interesting, informative, and very provocative. We thank them.

OUTLINE

1. What Mass Media Can Do in Development
2. Two-Step Flow Model
3. Mass Media Audience in Less-Developed Countries
4. Change Agents Alone--Not Enough
5. Combining Mass Media and Impersonal Communication
6. Needed Research

Chart A

COMPARISON OF INTERPERSONAL VS. MASS COMMUNICATION

	Characteristics	Interpersonal (WOM)	Mass Media
1.	Direction of Message Flow	2-Way (feedback)	1-Way
2.	Speed to Large Audience	Slow	Rapid
3.	Message Accuracy to Large Audience	Low	High
4.	Selection of Receivers	High	Low
5.	Overcome Selectivity Processes	High	Low
6.	Understanding	High	Low
7.	Amount of Feedback	High	Low
8.	Possible Effects	Attitude Change	Create Awareness

Chart B

Chart C

TWO·STEP FLOW MODEL

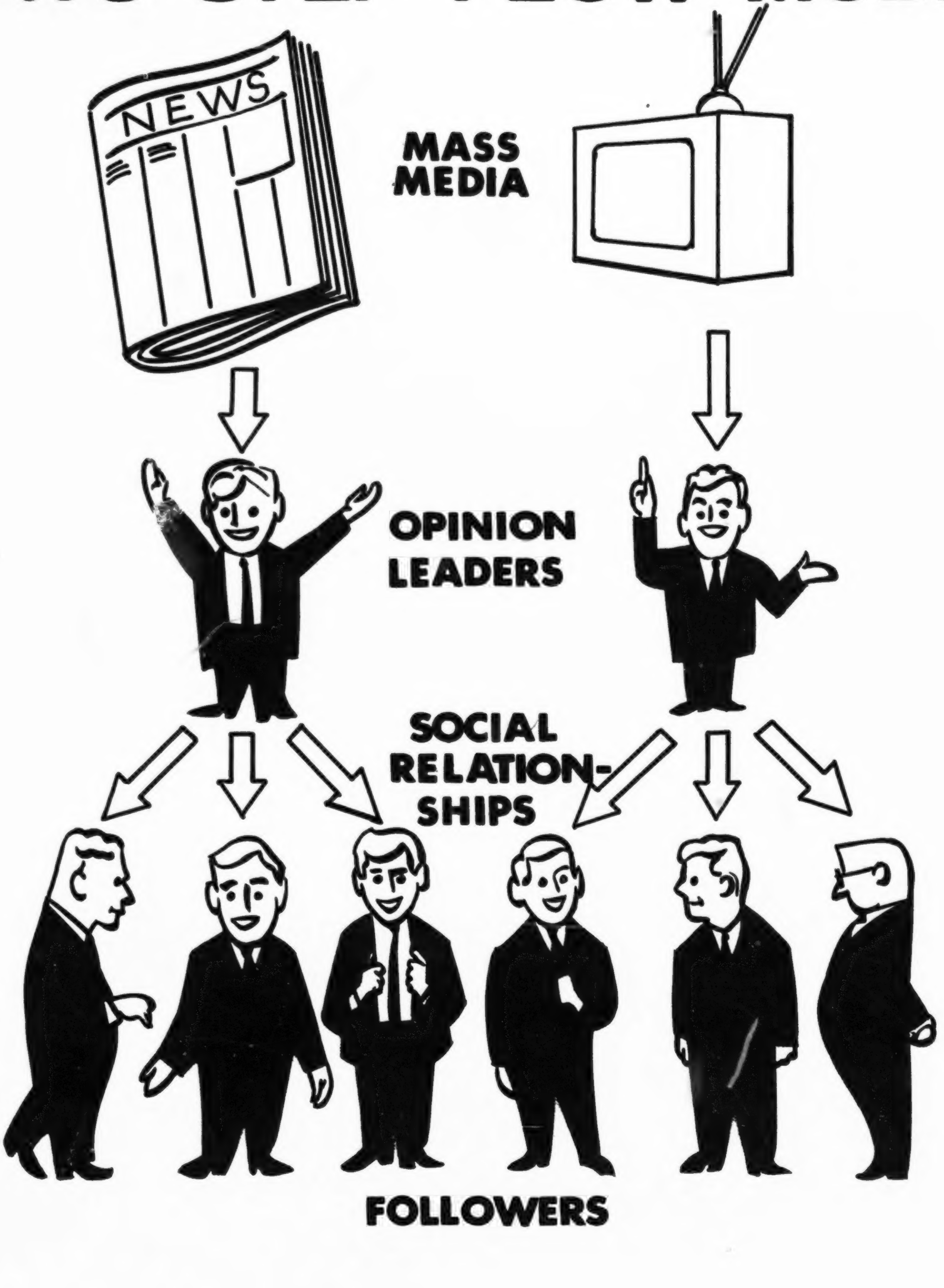
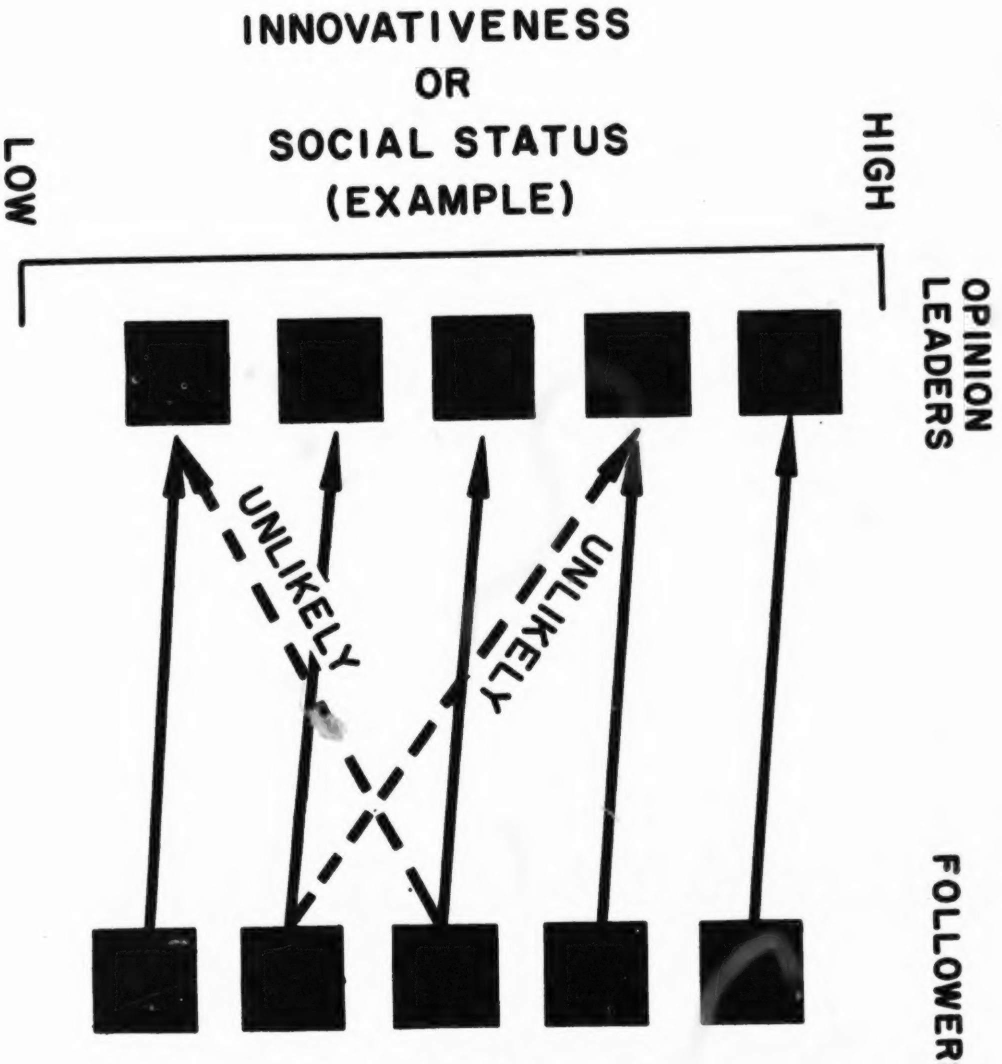

NEWS
MASS MEDIA
OPINION LEADERS
SOCIAL RELATIONSHIPS
FOLLOWERS

Chart D


INNOVATIVENESS
OR
SOCIAL STATUS
(EXAMPLE)
LOW
HIGH
OPINION LEADERS
UNLIKELY
UNLIKELY
FOLLOWERS

OPINION LEADERS ARE MORE COMPETENT THAN THEIR FOLLOWERS, BUT NOT TOO MUCH SO.

#3. AUDIENCE FOR MASS MEDIA IN LESS-DEVELOPED COUNTRIES

	Percentage with at Least Some Exposure				
	Colombia Modern (N=160)	Colombia Traditional (N=95)	India (N=702)	Kenya (N=624)	Turkey (N=64)
Newspaper	60%	20%	6%	17%	48%
Magazine	18%	6%	8%	17%	0
Radio	60%	44%	34%	66%	64%
Television	13%	0	0	0	0
Film	68%	11%	38%	38%	44%

Chart E

12 AGRICULTURAL INNOVATIONS

COMMUNICATION CHANNELS (AWARENESS)

	Channel	Percentage
1.	Interpersonal (Friends, Neighbors)	18%
2.	Interpersonal Technical (Extension)	28%
3.	Mass Media (Radio, Newspapers)	5%
4.	Not Aware of Innovation	49%
	TOTAL	100%

Chart F

Chart G NEURATH RADIO FARM FORUM STUDY (INDIA)

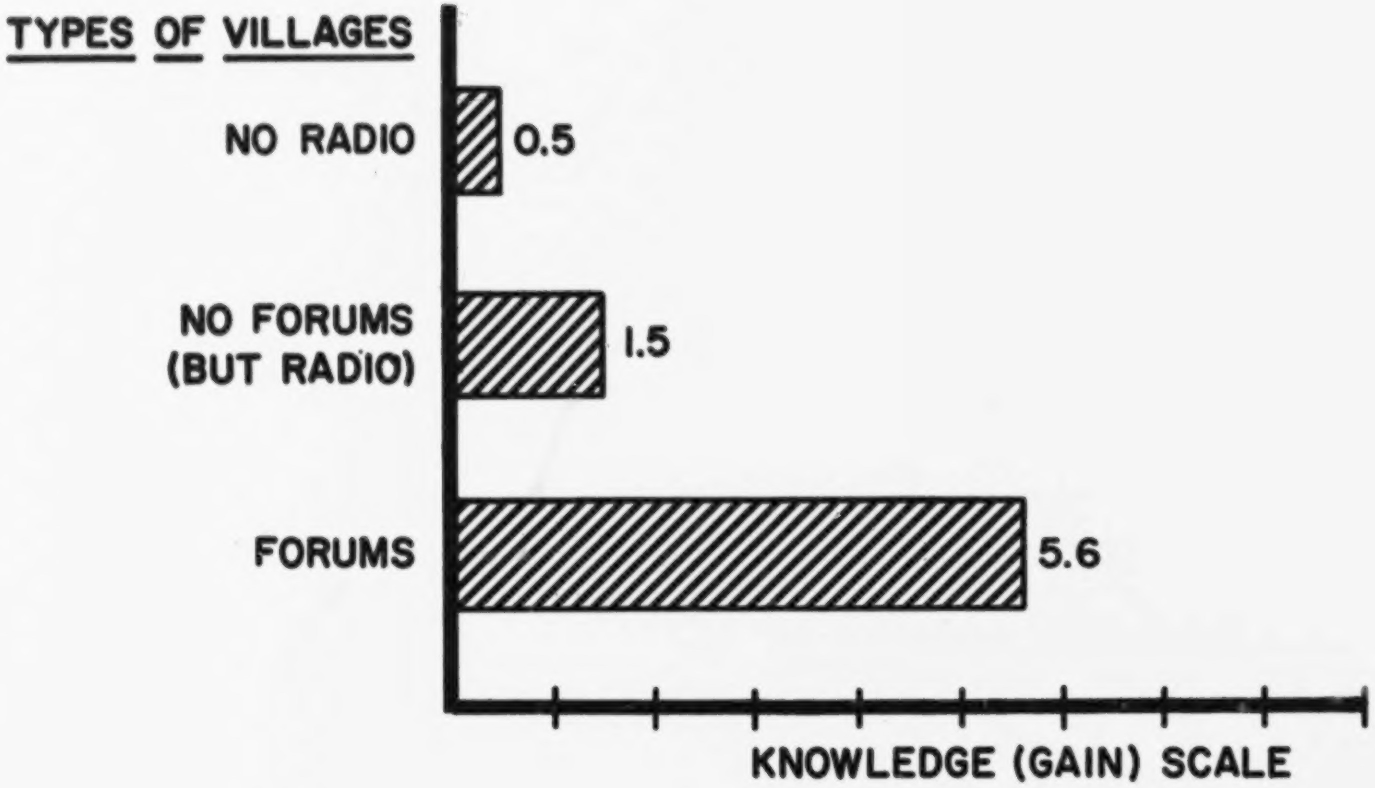
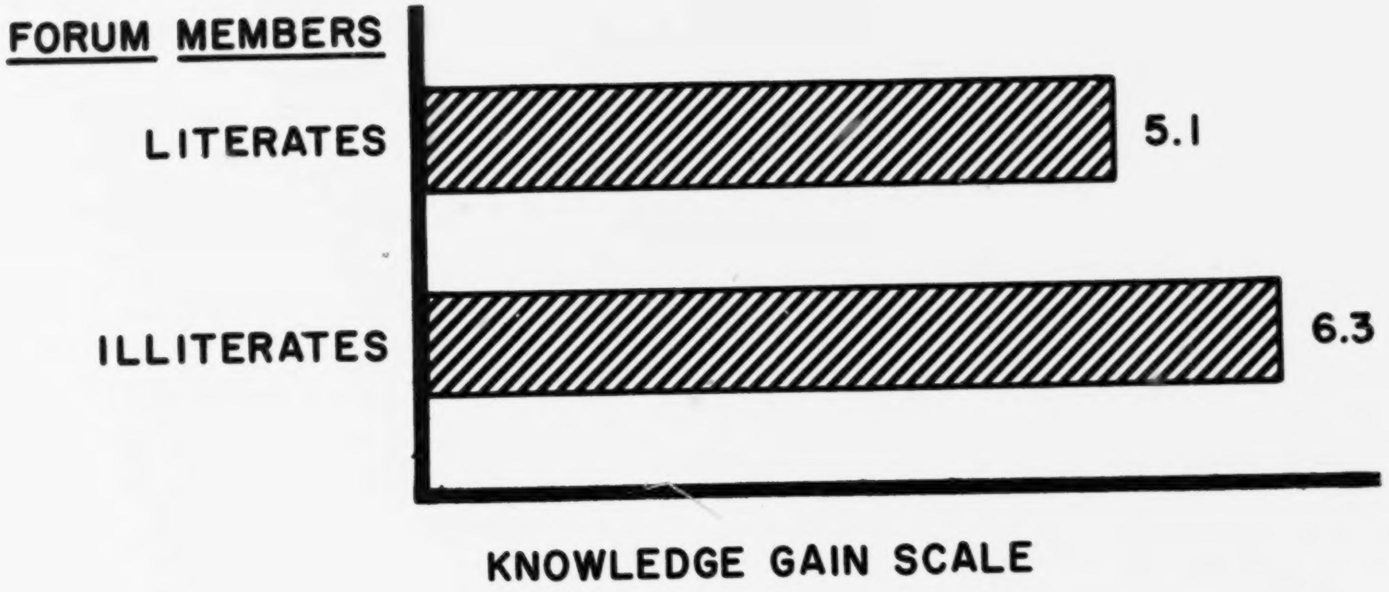


Chart H FORUM POOLING EFFECT



SIMILAR RESULTS FOR —

WOMEN – MEN
HIGH-LOW CASTE

ESSENTIALS FOR EFFECTIVE FORUMS

1. Relevant Programming
2. Post-Program Discussion Application
3. Feedback
4. Include Opinion Leaders
5. Maintain Forums--Service

Chart I

EXPERIENCE TO DATE WITH FORUMS

1. Canada--Radio
2. France--Teleclubs
3. Japan--Teleclubs
4. India--Radio--Neurath
5. India) UNESCO
   Costa Rica)
6. Ghana
7. Brazil) Diffusion Project
   Nigeria)

Chart J

Thursday, May 4, 1967
CASE HISTORY: Mass Fertilizer Demonstration Project in El Salvador

JOSHUA LEVINE: Milo Cox is Chief of the Rural Development Division of the Agency for International Development's Latin America Bureau, and is considered by his fellow Latin American workers as something of a sage in this area.

Milo graduated from Texas A & M College in 1941. He started out his undergraduate career as an engineer and then decided that there were finer pastures, to use an agricultural phrase this early, in the field of biological sciences.

He is one of the people who has two doctorates. He has been a biologist, he has been an ecologist, he has been an agronomist, and has instructed and done research in these fields, but perhaps most important from our point of view today, he has done a great deal of work in the field in Latin America, and he knows, perhaps better than anyone, the problems of bringing agricultural advances to the developing societies of Latin America. He spent four years in Chile, about two years in Bolivia, another two years in Uruguay. He now applies the knowledge and the experience he has developed on those assignments to all of Latin America.

Without further ado, I will leave the microphone to Milo Cox who is going to tell us about the Fertilizer Demonstration Project in El Salvador.

MILO L. COX: I always hear something about these two Ph.D.'s. It is considered to be a distinction comparable to being the world's largest midget. It really does not mean very much but I did have a lot of fun in the process.

Well I have not been back to the States terribly long from working for the last ten years in Latin America and I am still suffering from reverse cultural shock or what my friends in AID call the reentry syndrome. It is kind of a confused feeling which you have in reverse when you spend too long away from home and then come back, so I may grope for words. I do not think I will switch to Spanish without notifying you but sometimes a word slips out.

I am a little bit like a Latin American student who came to the United States to study in one of our agricultural colleges, and he was having difficulty with his English as I sometimes do, groping for words, but he was learning quite rapidly. The agricultural school where he was had a summer picnic, and during the course of the picnic one of the professor's wives noticed this boy had a wedding ring on and she did not know he was married, and she said, "Is that a wedding band you have on?" He said, "Yes." She said, "I didn't know you were married. Have you been married a long time?" He said, "Yes, I have been married ten years." She said, "Do you have any children?" He said, "No." He said, "My wife is inconceiveable. No, impregnable. No, unbearable."

One of the things I am supposed to talk about today is this Mass Fertilizer Demonstration in El Salvador. I must say at the outset that we as an agency are on a kind of fertilizer binge right now, as though this were going to solve all the world's problems. We know this is not so but it sometimes appears we think it is. On top of the page that they gave me about this program there is an asterisk and down at the bottom the footnote said participants should feel free to deviate from points specified. I am very grateful for this freedom because I hope to lead you about in some other areas beside fertilizer.

I have not prepared a formal paper. I made some fantastic notes though.

It was Roswell Garst from Iowa and Dr. Benjamin Birdsall who first got the idea that they should give this thing called Mass Fertilizer Demonstration a whirl. Now there are a lot of reasons behind this. The principal one was they wanted to get this new practice to the farm as quickly as possible, pick a small country, pick one crop, pick a very small simplified package, and move on in a massive way instead of the way we do it at the experiment station.

This Mass Fertilizer Demonstration Program is really an extension technique in rural education designed to demonstrate to the small and medium farmer how to increase his productivity by the use of fertilizers and insecticides on well adapted varieties of corn. Corn was the crop chosen. The idea was to let the farmer obtain, on his own land, the kind of results we were getting at the experiment station. This, incidentally, is a yield-jumping corn from around 10 to 15 bushels per acre to somewhere around 40 to 80 bushels per acre, depending on the land and how well the farmer carried out his work. Some increases were possible in the same area with rice, beans, sorghum, and some other crops.

They put out about 15 or 20 demonstrations in each little agricultural community, and they went at this in a very simple way. The test plot was only 20 rows wide and 20 meters long right smack in the middle of somebody's field. These fields are all small. They put so many plots out that you could not ignore the data. Every time you turned a corner in El Salvador you would run face on into one of these things with a big stalk of corn in the middle of the field, so it was a very impressive thing for everyone to see.

The extension service in El Salvador has 50 field offices. There were 18 brigades of what they called fundamental educators from the Ministry of Education working with them, several Peace Corps volunteers, and I found out this morning that some of the 4-H Club Foundation people were also involved.

The first trials were put out in 1965. There were a total of 3280 demonstrations scattered throughout the country. Practically all of them were on corn. Only 200 of them were on rice. Five to 15 bushels per acre on the sides of the test block, and in the test block, 40 to 80 bushels per acre were the kind of yields they were getting. This adds up to a return of somewhere between $3 to $5 to the farmer for every dollar he spent on his insecticides and fertilizers and good seed varieties.

Now remember that most of the corn in El Salvador is grown by small farmers on little blocks of land, averaging about one manzana, which is about 1.7 acres. The farmer grows corn every year whether the price is high or low. He needs it for his family's use, his poultry, and some of his animals. He seldom has a surplus. Most of the farms have some kind of primitive storage facility in which the grain is kept.

The farmer provides all his own labor and uses oxen, generally, for plowing with a wooden plow, and he does all his land preparation. The planting, fertilizing, watering, harvesting, drying, and even shelling are done by hand.

This is a very extensive use of hand labor and it is very common in rural areas, not only in El Salvador, but the rest of Latin America. Now these higher yields through fertilizer and good seed and insecticides really multiply the effectiveness of this hand labor in a tremendous way. It is fantastic how much increased efficiency they get by the use of manual labor.

At existing prices, the input cost for fertilizer, seed and insecticide is about equal to 10 bushels of corn. So he can jump his yield from 15 to 60 bushels and take 10 of that out to pay for the input. Private industry in El Salvador contributed 68 tons of fertilizer and three and a half tons of insecticide and some of the seed; in all about $6,000 worth of inputs. The Ministry of Agriculture in El Salvador provided the services of their extension people, some more of the seed, and transportation. AID contributed the services of one technician, Ben Birdsall, a vehicle and $1,300 in cash for materials and supplies.

Now, you can figure out the dozens of ways to evaluate this thing, but what really came out of the 1965 program was about 30,000 acres in corn land representing 15 to 20 thousand farmers, with increased yields in the magnitude we talked about, totaling about one million hundredweight of corn above normal yields. This is about $1,000,000 of business for private enterprise and about $3,500,000 in gross income to small and medium size farmers.

In 1966 the program was enlarged to bring in sesame, plantains, bananas, grain, sorghum, and rice. Again private enterprise donated the materials, about double the amount in the preceding year's program. Now they already have a program ready for 1967 which is a little smaller than the second one but a little larger than the first one.

These companies have generously agreed to supply the necessary materials again for the third round and probably they need to do it again. The program is closely geared to credit facilities that came into being about the same time.

This is an example of the very successful demonstration, if you put it on a strictly technological basis. Almost everyone heard about it, nearly everyone saw it in part. The yields were outstanding.

Let us take a look at some of the things that may happen when you go into a program like this on a massive basis in any country. Another way of saying is is: how is this applicable to the rest of Latin America or to the rest of the world, and what are the factors that may limit the effectiveness of such a program or may add to the effect of such a program?

In the diagram shown, I have laid out a systematic approach to food needs in the Latin American areas, and some of my colleagues say this applies beyond Latin America. When I first drew this diagram I had it much more complex than this, with about 50 more blocks. When I found I could not explain it to anybody I started pulling it apart, and I have gotten it down now to the very meat of the material. You will note that a lot of things are left out. On the other hand there is nothing in the chart that is new.

What I want to demonstrate here is the interrelationship of these factors. President Johnson, Mr. Gaud, Mr. Bronheim, and all of my other multitude of bosses are very much concerned about this block called "Food Needs." Everybody looks at the population growth and agricultural production and this is a frightening thing.

Need is really quite simple to calculate. All you have to have is the size of the population, the rate of population increase, required diets, and you can figure out need. What is startling is when you get the answer. It is a tremendous thing. It is so big that everybody is afraid of it. The biggest problem with this figure is that need is probably twice as big as effective demand, and by effective demand I mean simply the ability to purchase food.

If you could suddenly produce this need-figure which we calculated, which I am sure technically we are capable of doing; and if we could throw this tremendous amount of food into a market that obviously is not ready for it, then it would work its way back through the system to farm prices, and farm prices would decline and the farmer would slide back towards subsistent agriculture, which is his only real alternative to a declining income.

If, as many Latin American countries have done, you put a ceiling on consumer costs and artificially control them exactly the same thing happens, i.e., farm prices decline, the incentive to produce disappears and what was a commercial farmer becomes a subsistent farmer. If you attempt to get the incentive up simply by using the means of subsidizing the farm price, it works backwards through the system, consumers costs go up and this is politically explosive. But worse than that, it reduces the effective demand, placing a ceiling on production. It is a real beast, isn't it?

But there is a tremendous spread between the farm prices and the consumer cost, and if you think you are paying a big slice in the United States, you should see what it looks like in Latin America -- sometimes four or five hundred to one thousand percent difference between the farm price and the consumer price.

The way we think we should tackle this spread is to tackle it through the marketing mechanism. First of all, market news. If you can let a farmer know what his market is really worth before he bargains with that itinerant truck driver, it puts him in a very good bargaining position. It has only recently been possible, with the entrance of transistor radios into the rural communities. Most of the Indian population in Central America, in Bolivia, Peru, cannot read or write, nor do they speak Spanish, so the newspaper bit is out for them. Transistor radios work very well. A little short news program just before daylight, before he goes to his field, and another one just after dark when the truck driver comes by--then he knows what these things are worth in three or four towns.

Storage is a very important thing and one that we have heard mentioned already in the meeting this morning. This helps stabilize prices. Processing, more rapid distribution and a great reduction in spoilage, which may be running as high as 30 to 40 percent in most of the Latin American area today, add to the farmer's income.

The point here is, if you can make great savings in this spread and handle the savings wisely in government policy, you should be able to give part of the savings to the farmer, part of the savings to the consumer, and get the incentive and the effective demand up together instead of one of them always killing the other one off, as the cycle is operating now. If this does not carry you far enough, you must look at the government itself for some of the things that inhibit production or encourage production.

In the chart, government is broken into two blocks--the national and local governments--one being more policy-oriented and the other being more operations-oriented. First the policy one--I put in a policy of minimum guaranteed prices. This does not mean it is the only policy I have in mind. But it is a very effective one which does reduce the farmer's marketing risk, increase his income and jumps his incentive to produce. Do not ever get the idea that they do not respond to economic stimuli, because they really do. They do even if they only think they will get an increase.

At the local level one of the most important things we have found is commodity contracts carried out by the private sector. Let us imagine we have a private sector man producing oil from peanuts, and he is not getting enough peanuts to keep his mill busy, so he goes out and talks to farmers and says, "If you grow the right variety which I will make available to you, and use fertilizers to get your yield up and keep the bugs out and keep the quality up, I will guarantee your price." This is very, very functional and it is working very well in Chile, Argentina, in Uruguay and in parts of Bolivia, but the trouble with it is, it is small. It just affects an area around this private enterprise plant, but the important thing for us to remember is that this process that works so well is the same as the one that can be made massive, if the government chooses to take this kind of initiative.

Now, let us look for a moment at another element in the picture. We expected the private sector to come in with cheaper inputs and couple these with production technology that we have already or could make available, as Ben Birdsall did with his demonstration: credit where it is necessary or co-ops if necessary; but these two things together, technology and input, give you higher yields and generally a lower per unit cost of production, which can improve profits without necessarily affecting prices. It is very critical that we work in this area. The farmer does not know very much about this bit. It is pretty hard for him to understand that if you spend money you can cut your costs, so we have a real educational problem.

If we can get all three of these elements on the stream at once, as they have done in Taiwan and in Japan and a few other countries, then we would expect to find a narrowing in this spread. Perhaps we can stop the spiraling of food costs, maybe even get them down a little bit, and with effective demand growing closer and closer to needs, which is the mythical figure that we are all worried about. Now let me give you a few examples of how this applies in the Latin American area.

In Operation Bootstrap in Puerto Rico, this marketing thing was done exceedingly well. The spread did decline, the consumer costs spiral was stopped, effective demand did go up, but they did not do very much about production. So the new demand was met by a surge of imports which is pretty rough on balance of payment schedules.

In Chile, Uruguay, and Argentina they are not too bad in these areas, but they have government policies which are just whacking them over the head all the time and really wrecking the possiblity of doing something with the production cycle. For instance, the policy to put a high import duty on fertilizer and seed and insecticides is one of these kinds of policies.

In Brazil the opposite extreme is true. They are not doing too badly in some aspects, and the government now is willing to do almost anything to get the production cycle going. The same problem applies to the United States in the sense that we had technology carefully worked out and policies so favorable and marketing so efficient that we overproduced for the need. But we had enough policy and money to put it off the market so we did not kill the incentive to produce. This is a sloppy way to do it, and I would not want to get the Latin Americans strapped into this kind of system.

No matter where I go in Latin America, whether it is in a little country market or in a village or in a capital city, the markets are always full of food. I have never been in an empty market. It is not all sold. There is another waste component between the field and the market which is indicated by spoilage. So what I am really saying is that no matter whose data I use, files of AID or USDA, I come up with the same conclusion--the farmer for many years, at least 10 years, has been producing up to effective demand, and he is still doing so. Now I will admit that this demand is too low to give everyone an adequate diet. It is too low for agriculture to play a real role in the overall economic development, but nonetheless the farmer is meeting demand as we see it.

Somebody would say, what about all these big imports of food they have been getting? Last year it was $600 million and that is only $2.50 per capita per year. This is very, very small. Latin Americans are producing all but three percent of what they consume, and they are exporting about six or seven times what they are importing. The situation is not really as bad as a lot of people would lead you to believe. On the other hand, we know that the demand figures are exceedingly low and the diets are poor. Population growth is going up but demand is not going up, and diets are getting worse. We cannot dodge this one. That is what is happening right now.

If the businessman makes any money selling cheaper inputs to the farmers, his income will funnel back into increased incomes, and this is part of the demand picture. The farmers' profits will do likewise. Population growth also makes demand go up. Well then, what has been happening?

The truth is that increased incomes are occurring, and they do tend to make demand go up; population is growing and this tends to make the effective demand go up; but the consumer costs have been spiraling, which lowers demand. This cycle has just about cancelled all of it out, so the resultant factor is a very slow rise in effective demand, and if demand grows slowly, a primitive agriculture can change fast enough to cope with it.

How has agriculture been able to do this? Farmers have used the same old traditional means in keeping up with the slowly rising demand; they have simply farmed more acreage or, in their own simple way, they have intensified their production, not from the point of using purchased inputs, but they plowed a little better, used a new variety of seed as it comes along, irrigated a little better, farmed more efficiently, plowed more efficiently: somehow, they have increased their production. Now these traditional means of meeting a rising demand are just about used up. It does not mean there is not more land out there. There is lots of it. It is not economically available because it is remote, the infrastructure is not there, the roads are not there, so that land cannot be used. I do not believe the farmer can intensify much more until he can get into the purchased input area of fertilizers and insecticides and better variety.

The paradox is this: while effective demand is now limiting production, it might very quickly take off more rapidly than a primitive agriculture can cope with, mainly because farmers have used up their two traditional ways of coping with rising demand. This will happen unless we can make new land available on an economic basis, or get profits up to the point where the farmer can actually afford to buy the inputs, or we must get the price of the inputs down.

We hope to computerize this a little further once we are able to evaluate it. We are not quite ready to be quantitative about it, but I think perhaps we can be so in the future, and we will have to apply some systems analysis to the idea to put back all the pieces I took out. I have taken out land reform and education and research and the inputs of the public administration people, but I think in time we can become quantitative about it.

Let us say that we hold everything constant and we run 20 policies through to see which policies are truly sensitive to this system and which policies really do not make very much difference. If I had these kinds of data and I sat down to negotiate with officials of Uruguay or Chile and we had some good conditions precedent to the loan written into the paper, I know this negotiation would have to be give and take. Would it not be nice if I could know for sure where I could give without hurting the system and where I must not give for fear of wrecking the system? These are the kinds of things we are working on very diligently and which we do not have.

As soon as Birdsall gets this thing worked out, everybody will begin to say, "Why don't we do this everywhere?" As soon as the word got back to Ben he sat down and wrote us a long letter and said, "Look, fellows, there's a lot happened before we did this demonstration." So he laid out the problems. He said the most important problem is recognition of the need for the program at a high enough level so the government itself can make some decision. He did not get a lot of enthusiasm from the host country, but he did get gracious acceptance. They did not stand in the way and they did, through the Ministry of Agriculture, help to some degree. So he was pretty well off in this area.

He said secondly, we are going to have to be able to get the materials. Now the fertilizer people, the insecticide people, and the seed growers came through, so Ben got his cheaper inputs. He said we had to have credit. He happened to hit just at a time when the International Development Bank credit loan and the AID credit loan both were becoming effective, so Ben was very well off on the credit side. Then what worried him was the market. There are three to four dollars return for one dollar invested out the window. El Salvador has already produced more corn than it can consume. They have overshot effective demand, and their price for production is too high to compete in the world market. So here is the real dilemma. How much further now can we go? If there is no way to sell it you simply cannot convince the farmer that he must continue to produce it beyond what he needs for his own family.

Now the supply pipeline was good, the research was excellent. Ben had 10 years of corn research preceeding this thing. They knew exactly where they were going and exactly what would happen in the demonstration. He says many of these problems are such that it has taken several years of research, development and extension education to bring them to a point where a program could be successful. Therefore some caution should be exercised in selecting areas within countries where similar programs have to be anticipated.

Then he says it takes a lot more than just a Ben Birdsall to make Mass Fertilizer Demonstration work. At about this point we got worried and sent Ben a lot of questions. What if the farmer had to buy this fertilizer instead of the man giving it to him, what if he had to buy the seed and insecticide, and you tell us already you have overproduced for the demand, and the price is already falling in the market, how attractive does it look now?

Well, on corn it is $2.35 return for each dollar invested and $1.52 if it is sorghum and the two together come out to about two dollars return for one dollar invested, so already the success of the technology has allowed the farmers to produce above their market needs, and the prices are falling. I do not know how far they will fall. Ben has already calculated for us how far they would have to fall before the farmer could no longer make a profit. But as prices fall, demand will rise. Because people will consume more corn, farmers will feed more of the sorghum to the poultry and hogs and they will eat more corn. But if the price falls too much, incentive is killed.

These things sometimes look terribly successful from a technical standpoint, but when you look at all the factors they may not stack up too well, or at least if they do, we have to have some very careful controls to be sure production does not outrun demand. Then we have to work very, very hard to be sure we can figure out how to get demand up. When we get demand growing, we have to figure out a way that this agricultural complex can meet demand so that consumer costs do not spiral out of line.

DISCUSSION

MR. MARTINSON: What has this done for labor intensity? Has it increased labor in agriculture, and what is the possibility of increasing effective demand when workers leave the farm?

MR. COX: He is asking what this process does to farm labor, does it release farm labor, does more farm labor go into the cities, and does demand have an effect on this?

Not very long ago I was showing this diagram to the Chileans and I was chiding them severely because they had a policy of a high import duty on all of the inputs that their farmers need. In the process of this discussion they came back very quickly and said, "Now wait a minute, we are correcting that. We just got through taking the import duty off tractors and farm machinery, and we can buy this sort of equipment." The problem here is that they picked an item that was not really sensitive to the system. Farm machinery generally is not yield-increasing. It decreases labor and they have unemployed labor running out of their ears in the agricultural area in Chile. If they had taken the import duty off fertilizers and seeds and insecticides, which are real yield increasers, they would have gained a lot in the utility of the manpower that is now unemployed and they would have had increases in productivity without destroying the job on the farm for those people dependent on farm labor. Sometimes farm machinery does increase yields if you happen to have a certain climatic condition or some other special situation.

The point here is that we are not in a very good position yet to attempt to mechanize farming in the Latin American area. The industrial complex in the cities is not yet up to the point where it can absorb the farm labor that mechanization would release, and farm labor is not well enough trained to go into the industrial complex.

In the United States the term unskilled labor usually refers to a person who does not have a profession. He is not a plumber or an electrician or a mechanic, but you can leave him a note to read and he can drive a nail, he can saw a board in two, he can drive a pickup. An unskilled laborer in Latin America cannot do any of these things. So there are two completely different things here when we talk about unskilled labor. Unskilled labor in Latin America is nothing like what we call unskilled labor in the United States.

MR. LEVINE: I would like to ask a question pertinent to this point.

When you come right down to it, what the Latin American farmer, or for that matter the farmer anyplace in the world, represents is the production technology or at least the chief part of it, particularly in primitive agricultural societies before farm equipment has been introduced. He uses the productive technology. It seems to me also that if you think about the title of this symposium, Manpower and the War on Hunger, he represents the manpower problem in the War on Hunger, and it has occurred to me many times to wonder what we are doing in terms of introducing technology or technological thought to him and at which stage of the game.

I have been spending a great deal of time on Latin American educational systems lately, and one of my disappointments is to discover how late in the system, if at all, the Latin American child is taught about his agricultural environment. I do not think he ever hears the words "rainfall" or "erosion" or "fertilizer" in the school system, and yet it seems to me that these concepts are not so difficult but that a seven or eight or nine year old child could at least be introduced to them, so that when the private entrepreneur five or 10 years later comes to him with a proposition of fertilizer and improved seed and so on, he would at least know what that man is talking about.

Now I come to the point of why I introduced this subject. It seems to me that both the educator and the agriculturist in the development scene have failed to get together on what I regard as this very crucial area, making the farmer himself the production technologist and making him so, at the very first time when the system gets its hands on him, so that at least he has had some exposure to the real environment that he is going to live in.

MR. COX: Unfortunately, I have done all my teaching at the university level, and so I have not had very many introductions to this kind of problem, but I will tell you a story that I always used to like when I got a bunch of high-powered agricultural technicians in the room. It had to do with the country school teacher who was worried about some of the things Josh is worried about, except in reverse. She was city-bred and got a job teaching in a little country school and did not know anything about agriculture. So she thought first of all she had better learn from the kids, so she asked the kids to prepare a theme, a little paper on agriculture, which they all dutifully did. The first one she read started off like this: "Agriculture is just like farming except in farming you really do it." This usually brings down the ire of all the agricultural technicians about my head and ears.

Another point we might make here--the relationship between effective demand and need--is just as true in the education field as it is in agriculture. If we decide that Brazil needs 100 agricultural economists and we ferret these people out wherever they are hiding and bring them to the United States and train them to the master's level in agricultural economics and send them back to Brazil, five years later we find out they are either driving taxis or managing small hotels, or doing work of this sort. We must recognize that the need for these people is very real, but the effective demand is not present in terms of salaries or institutions to work with. The same could be said for research data. We may have a very great need for data on fertilizer and other inputs, but if the profits are not possible, if there is some structural reason why these inputs will not be put to good use, then the need for the information is there, but true effective demand for that information is not present.

ANDREW EWELL, National 4-H Foundation: I would like to raise a question particularly related to the inadequacy of education. We have a Peace Corps contract where we are providing a number of our staff down there working with Peace Corps volunteers, attempting to establish a 4-H type training program for youth in the field of agriculture, and I wonder if you see in that an opportunity for supplementing the school by something like a 4-H youth organization? As a matter of fact, historically this is what happened in this country when 4-H was started. Our rural schools were very inadequate in this area.

MR. LEVINE: Obviously there is a need for that kind of effort. The problem is that we think about doing this elsewhere in the same context we did it here, and it just does not work. The big difference is this: if you draw the educational pyramid of the United States, you will find about 100 percent of the people entering the first grade and about 66 percent of them getting out of high school, and then something less than that getting out of higher education systems. But in Latin America the typical pyramid does not look anything like that. You get maybe 80 to 90 percent in the first grade, but by the time they get to the third grade, 50 percent of them have dropped out, and by the time you get to the secondary school system, you are down to about 15 percent. If you get two to six percent out of the secondary system compared with our 66, you have done a great deal.

Now, thinking about 4-H programs or any other program like that in that context is quite different than thinking about it in the context of the United States today, or even 50 years ago.

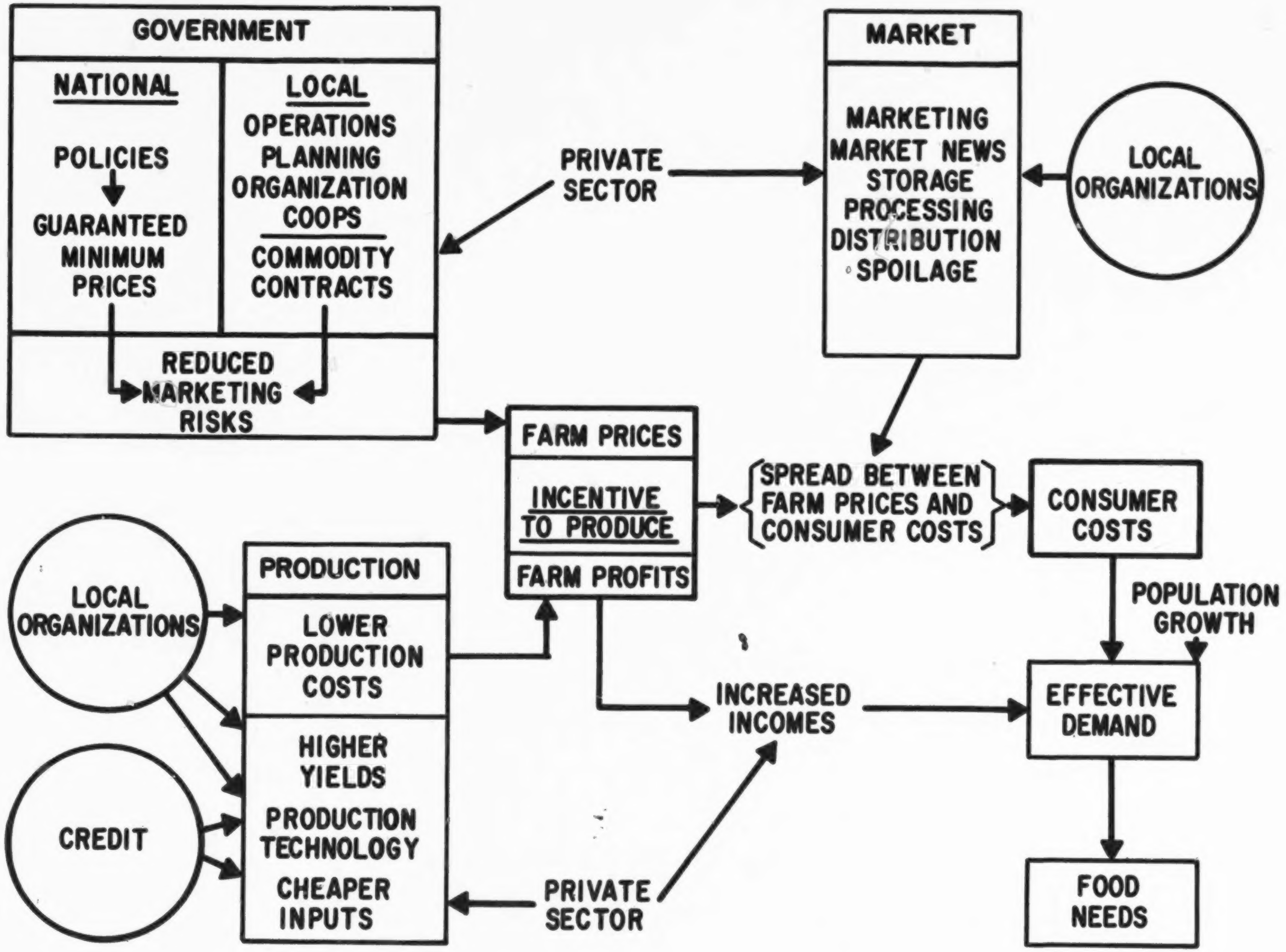
LEWIS H. EARL, U. S. Department of Labor: In taking some of the factors out of your chart, the manpower factor was taken out, and I wonder in El Salvador where the two major crops are coffee and cotton, and where most of the agriculture manpower is hired manpower and not the entrepreneur which you are working with here, if you would comment on what the effect would be on manpower.

MR. COX: I did leave out manpower and also left our land reform, which links up with what you are saying. I have been working on this idea for five or six years now, and I was not able to explain it to anybody until I got it on a visual chart where people could see the whole picture at one time. Even so, I have had to oversimplify, and now that I have enough people in the agency seeing eye-to-eye with me, maybe I can start putting the pieces back together. I hope we will link it up. What I really want to do at this stage is to get similar thinking. First of all, we have to figure out a way to institutionalize this kind of thinking in the host country, not just here. We have to get people, their planning commissions and their ministries, thinking in these terms so that the Ministry of Finance knows what the Ministry of Agriculture is talking about when an attempt is made to get budget increases. Then, I want the rest of the institutional divisions in AID to work out charts similar to this one; one in the field of industry, another in the field of manpower, education, and all other areas and put them all together in a three-dimensional model. Then, I would like to connect up all the arrows to the places that might be affected when a change is made in any one part of the system. Now, we do not really recognize a change in policy or the true effect of a change in emphasis in our program, because we are only looking at the one factor we had in our hand at the moment when we proposed a change.

Our technology has grown very rapidly. We have accumulated a vast amount of information, but I suspect we have not gained much in wisdom over the centuries. To put it all together in one model will be a very difficult thing to do, but I think it would be quite useful even before we are able to be completely quantitative about it. For instance, the whole manpower program in El Salvador has suffered reverses. In cotton, growth has suffered very drastically in the last couple of years; a lot of manzanas were taken out of cotton, and they have had disease and insecticide problems which have not been solved; so, a lot of people have gone back to raising corn.

Land reform involves the entire manpower structure of the country as far as agriculture is concerned. We do not view land reform as just a system of redistribution of land or redistribution of property or even settlement on government lands, but the whole area of contractual improvement for the person who works for the entrepreneur. What does he make in terms of wages, what kind of a deal does he have if he rents land, or what kind of long-range tenure can he depend on? All of these things will become a part of the overall integrated land reform project. We are not really trying to reform land at all, we are trying to reform the way a society handles land ownership and land utilization.

MR. LEVINE: Thank you very much, Milo, for a very interesting case history.


GOVERNMENT
NATIONAL
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LOCAL
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COMMODITY CONTRACTS
REDUCED MARKETING RISKS
PRIVATE SECTOR
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MARKETING
MARKET NEWS
STORAGE
PROCESSING
DISTRIBUTION
SPOILAGE
LOCAL ORGANIZATIONS
FARM PRICES
INCENTIVE TO PRODUCE
FARM PROFITS
SPREAD BETWEEN FARM PRICES AND CONSUMER COSTS
CONSUMER COSTS
POPULATION GROWTH
EFFECTIVE DEMAND
FOOD NEEDS
INCREASED INCOMES
LOCAL ORGANIZATIONS
CREDIT
PRODUCTION
LOWER PRODUCTION COSTS
HIGHER YIELDS
PRODUCTION TECHNOLOGY
CHEAPER INPUTS
PRIVATE SECTOR

Thursday, May 4, 1967
THE WORLD FOOD SITUATION: PAST TRENDS AND FUTURE IMPLICATIONS

HARRY WEISS: I am going to introduce our speaker and I think I am a very good person to do this. I have not met him until lunchtime today. There is nothing I know about him that could be adverse to his interest. I find he has had a meteoric rise in his career from a farmer to the head of the International Agricultural Development Service and I suppose that is the way one should rise in a career from a farmer to administer an international program designed to increase world food production. He has had an academic career as well as a career in the Department of Agriculture and his name is Lester R. Brown. I think we are privileged today to have a man who has probably written more about the world food situation than anybody else around here, who is intimately familiar with the problems throughout the world. Without any further introduction, I am going to give you Mr. Lester Brown.

LESTER R. BROWN: It is a bit difficult to focus on the world food problem after a steak like the one we just had. I estimate it took six pounds of grain to produce each of those steaks. It is easy to understand why, as a country, we require very close to one ton of grain per person per year to sustain the kind of diet we have. Of that one ton, we consume only 150 pounds directly; the rest of it we consume in the form of steaks, milk, eggs, and so forth. Compare our luxurious diet with the situation, say in Bihar, where they are worried not about getting a pound of steak, but eight ounces of grain per day.

I would like to begin a fairly brief discussion of the food problem by focusing on a book, soon to be officially released, which deals with this problem. I am sure it will attract a great deal of attention. The book is entitled Famine--1975! America's Decision: Who Will Survive? The book is written by the Paddock brothers who two or three years ago wrote another book called Hungry Nations.

One of the more interesting aspects of this book is the chapter near the end in which, after having developed the case in the early chapters, they point out that it will not be possible, if recent trends continue, for the United States to bail out the hungry countries, year after year. The mass productive capability in this country, rather impressive a decade ago, will no longer be enough.

The Paddocks introduce a concept, which I am sure in this context is very controversial--triage. The term is used by the Army Medical Corps to classify combat casualties into three groups. The first has no real chance of survival. Under pressure in battle, you simply let them go. The second group will survive, though seriously injured, if given immediate medical attention. The third category they call the walking wounded; these will survive if you get them off the battlefield.

The Paddocks apply this concept to the various countries of the world. They pick some fifteen food-deficit countries and classify them into these three categories.

Interestingly, in the group that "can't" be saved are countries like Haiti, Egypt, and India.

A few pages later they list the 112 or so countries that got food aid from the United States last year and suggest that the reader classify them into three categories, depending on whether he thinks they can be saved or not.

This book, I am sure, will attract a lot of attention. It contains a great deal of overstatement, overstatement which was probably intentional. It was designed to draw attention to the world food problem and our failure to make any significant progress over the past several years.

The relevant question, as we look ahead in terms of world food production, population growth, income increases and so forth, is not whether there will be massive famine sometime in the future; there are immediate aspects of the food problem that deserve a great deal more attention.

Recent medical research has indicated quite clearly that serious food shortages in the earlier years of life not only reduce the lifelong potential for physical development, but for mental development as well. Simply stated, toda~~y's food~~ shortages in the less-developed countries are depreciating tomorrow's human resources for at least a generation to come.

Another aspect that I think is quite immediate and quite real concerns the implications of growing food shortages for political stability and security.

Secretary McNamara gave a talk last May in Montreal in which he pointed out the close relationship between the level of social unrest, political upheaval, military conflict, and the level of development in a number of countries. As countries became more developed, the incidents declined quite rapidly; since World War II there has been only one incident of armed conflict in the high-income or advanced countries, contrasted to some 38 conflicts in the low-income countries of the world. He summed up that talk very nicely in three words: "Security is Development."

For our purposes I would suggest that Security is Food, and that without enough food, there can be neither economic nor political stability.

As one looks at world trends in food production and food trade, some are becoming quite clear and quite persuasive. Thirty years ago world grain consumption outside North America exceeded production by about five million tons per year. By 1960 this had increased to 39 million tons and last year it totaled 60 million tons. Last year grain consumption outside North America exceeded production by 60 million tons.

I think it is becoming quite clear that the United States cannot feed the world. We can expand our exports further, and we will, but there are two important sources of additional demand today--population growth and rising incomes. All too frequently we tend to focus on the first. The popular press is saturated with articles on the race between food and people and many of us also present the problems in these terms. But rising incomes are also of major importance; in several countries rising incomes are generating more additional demand for food than is population growth.

This is most dramatically illustrated in the case of Japan where income per person has been gaining about seven percent per year in the past decade, and a sizeable part of this increase has been diverted into additional demand for food, principally imported grains, both food and feed.

Northwestern Europe has also experienced rapid gains in per capita income and very slow, almost negligible gains in population growth. In order to fully understand the problem, we must focus not only on the race between food and people but on the race between food production and food demand--demand consisting of two principal components: population growth and rising incomes.

Almost every country in the world has a multiyear development plan and is planning for substantial gains in per capita income. Whether these will be obtained remains to be seen, but significant for our consideration is that everyone is trying.

I mentioned that North American grain exports, which reflect the excess of consumption over production outside of North America, have increased from five million tons to 60 million tons over the past generation. In addition, there has been a very substantial reduction in world grain stocks. This reduction has proceeded to the point where there are not now any surpluses of grain, wheat, rice, or feed grains in the United States or anywhere else in the world. I repeat, there are no surpluses, as of early 1967, of any major food commodities in any country in the world.

The other significant indication of an even greater excess of consumption over production in the rest of the world is the rising cost of food. Food prices have been rising in country after country, but they have been rising more in the less-developed countries than in the more advanced countries. Some consumers in this country have complained about food price rises in the past year or so, but compared with almost every country in the world, U.S. increases in food prices have been very modest indeed.

Another way of understanding the price phenomenon is to look at the major food commodities. Man has two principal food staples: rice and wheat. Rice is the staple of the world's low-income people and wheat of the higher-income people. Prices of rice, reflecting a very serious imbalance of supply and demand, have risen to the point where any country with a ton of rice to export today can exchange it on the world grain market for two tons of wheat. At the time we are talking about closing the gap--hardly a day goes by in Washington that we do not hear someone give a speech on the need to close the gap between the "haves" and "have nots"--it is somewhat ironic that prices for the food staple, rice, in the low-income countries is climbing rapidly. The result is that people in the low-income countries are tightening their belts when the rest of us are still worried about our waistlines.

The United States cannot feed the world. This is becoming very clear. I think this was perhaps brought home most dramatically last year when we shipped the equivalent of nearly one-fourth of our wheat crop to India. This was the largest movement of food from one country to another in history. Interestingly, it was almost all on a concessional basis. Moving this amount of grain to India required some 600 ships, probably the largest assemblage of ships since the Allied Forces crossed the English Channel on D-Day, a massive movement, a logistical feat in which we can take some pride.

The purpose of this movement of food was not to increase consumption levels for food diets, not even to maintain consumption; it was simply to avoid famine, and by the end of 1966, after having moved one-quarter of our wheat crop to India, we no longer have surpluses of wheat.

I think the surplus era may be history now. Surpluses were characteristic of the post-war period, but I do not think they are going to be characteristic of the remaining one-third of this century.

Five years ago we had in this country the world's two major reserves in the race between food and people. These were our grain stocks, some 50 million tons above and beyond our immediate reserve requirements and, a sizeable area of idle crop land, As recently as 1966 this second reserve totaled 66 million acres out of a total of about 350 million acres of cropland in this country. We are bringing at least half of this remaining reserve back into use this year.

As one looks around the world at the food problems, attention is focused on Asia because there they are assuming the most critical dimensions. Within Asia it is possible to focus on two countries, India and China.

India's population reached 500 million last August. India is adding one million people per month; as of early May, population is totaling 507 or 508 million.

China has probably at least 750 million people and has an annual population increase somewhat larger than India.

India is adding roughly another Australia each year. China must be adding another Canada each year.

The two countries have many things in common. Both are today essentially fixed-land economies. Since they do not have a great deal more land that can easily be brought under cultivation, increases in their food production must come from increasing productivity of land already under the plow. India and China together have a population of one and a quarter billion people.

It occurs to me if you want to worry about the world's food problem, worrying about India and China would be plenty to worry about without even considering any of the other countries which face equally serious problems.

We have been able to tide India over one year of drought and near-famine conditions. We hope we will be able to do so for another year. It is becoming quite clear that with rations reduced to the level they are now in parts of northern India, the death rate is beginning to rise. The grain ration in Bihar state is eight ounces per day. Eight ounces is not enough to maintain body weight for a sustained period of time. Either the ration will have to be increased or this area will have to face increased malnutrition and eventually higher death rates.

If India were to buy all the food and fertilizer she is importing she would require two-thirds of her annual export earnings. China is now using 40 percent of its export earnings to import food and fertilizer. The problem inside China is probably rather serious.

Why are there so many hungry countries today, throughout Asia, Africa, Latin America? I think the reason is simple. Throughout most of history man has expanded his food supply by increasing the area under cultivation. This did not require any changes in technology. Another team of bullocks, some more seed, a few more children would expand the area in production. But in a world with a finite land area, this had to come to an end. In much of the less-developed world--Asia, the Middle East, Africa--there is now relatively little new land that can easily be cultivated.

For the more advanced regions such as North America and Western Europe, this did not pose a serious problem. All the increases of food production in both North America and Western Europe in the past generation have come from increasing the productivity of land already under cultivation.

We have developed a very impressive yield-raising capability. The less-developed countries, however, have run out of land but have not yet been able to develop a comparable food production capability. The reasons are fairly simple. They have neither the captial nor the technology to substitute for the new land they no longer have.

In addition to capital and technology, these countries are very much in need of skilled manpower, not just in agriculture, but in agriculturally-related industries as well. Building a modern fertilizer plant, and distributing the product, require a high degree of skill, not generally available in most of these countries. I know that in the countries which have achieved yield per acre take-off, the ratio of trained agriculturists to the rural population has been one trained person for 2,000 people living on farms. Very few countries with less than this ratio have been able to generate a sustained rise in land productivity. This is a very rough rule of thumb, but it gives some idea of what future manpower needs will be in agriculture if we are to succeed in getting the necessary increases in production that current population projections imply.

There have been some interesting new developments in this area. There is now being organized, as you are probably aware, an Asian Development Bank. The Asian Development Bank, from its beginning, is going to have a special agricultural fund. This will total several million dollars per year. One of the interesting things is that the Asian Development Bank is thinking of providing capital for agricultural purposes, and is also thinking very much of planning to provide technicians.

This is a somewhat different role for a bank; the World Bank and the other regional development banks have not put very much emphasis on agriculture and certainly not on providing technicians to this date. It is also becoming quite clear, as one looks at the various developing countries around the world, that there is a real shortage of trained agriculturists.

I recall a dicussion some weeks back, when someone in the Tunisia program was talking about agricultural policy and the need for a rational farm-price policy in Tunisia. It was pointed out that there was in Tunisia only one agricultural economist, so far as anyone knew, and he was not working in agriculture. This is not unusual by any means. There are a number of countries in which the number of professional agriculturists, by our standards, can be counted on the fingers of one hand. It is quite clear that this will not be enough.

As we become serious about winning the race between food and people, I think we face a prospective shortage of agriculturists very similar to the shortage of engineers that developed some years back when we decided to enter the space race. But I think the shortage of agriculturists is likely to be even more acute than the shortage of engineers was in this country, because this is going to be worldwide.

Most of the land-grant institutions in this country that have been turning out trained agriculturists for decades now are still gearing their own thinking and planning very much to the domestic scene, and not looking at the large less-developed world, where the need for trained agriculturists is becoming very acute, indeed critical.

We have, in this country, an impressive reserve of professional agriculturists. We have them because we have been producing them at an impressive rate for decades, actually beginning back in the latter part of the last century. We have an impressive reserve in the Department of Agriculture alone; in fact, we have some 40,000 professional agriculturists, ranging from entomologists to agricultural engineers.

One of the things we must do as we look ahead is devise means of using what is going to be a very scarce commodity, professional agriculturists, more efficiently. One of the ways in which we can do this is to develop some rational farm price policies for the developing countries. For some fifteen years now, we have been sending our agricultural technicians overseas for the purpose of helping developing countries to adopt modern agricultural technology. In many cases, we failed to look at the agricultural price policy and to examine the question of whether or not it was profitable for farmers to use modern farm technology. After looking at a number of countries, one has to conclude that sometimes it is not. For any number of developing countries today, the cost of fertilizer and other purchased imports which we associate with modern agriculture is such, relative to the price the farmer receives for his wheat, his rice, or other crop, that it simply is not profitable in economic terms to use these inputs.

Therefore, one of the things we can do to increase the efficiency of our limited supply of professional agriculturists is to support policies that will enhance their effectiveness.

THREE ENCOURAGING DEVELOPMENTS

I have talked about some of the problems and some of the more discouraging aspects of the food-population problem as we look ahead. Let me focus, for a few minutes, on some of the bright spots that one sees, and there are some. One of these is the advances made in the last few years in increasing the efficiency of fertilizer production. Nitrogen fertilizer production costs are dropping rapidly now and more and more second-generation fertilizer plants are coming into being. These second-generation plants, to borrow a term from the fertilizer people, are bringing the costs of ammonia production down dramatically, in many cases reducing it by at least one-half. One way to get farmers to use more fertilizer is to reduce the cost.

Most encouraging, but perhaps, in the short run overestimated, are some of the breakthroughs in plant breeding. Some of the most encouraging of these in the last few years have been newly developed varieties of rice. Most of these have been developed at the International Rice Research Institute in the Philippines. Some new varieties, IR-8 in particular, have shown great promise of high yield throughout tropical rice-producing areas. I will point out, however, that realizing the genetic potential embodied in these new varieties will take a lot of modern farm management and a lot of capital investment to produce the increments needed. These varieties, in and of themselves, will not result in any substantial increases in rice production.

A third important development, at least from the standpoint of agriculturists, is the realization that the food and agriculture problem has two sides: achieving an acceptable balance between food and people is going to require concerted effort on both sides.

As we look ahead to the next fifteen years, it is difficult to be overly optimistic. It is rather clear now that, regardless of how successful we are in our family-planning programs, we can expect to have another billion people in the next fifteen years. We have never added one billion before, and four-fifths of this billion people will be added in the less-developed countries, the hungry countries, those that are currently dependent upon large imports--concessional imports--from more advanced countries.

I think it is important, in looking ahead and in confronting this problem, to ask the right questions. I mentioned earlier that the relevant question might not be "Will we have famine in the immediate future?" but rather, "What are the immediate implications of growing food shortages in developing countries?" The relevant question may not be "What will it cost to resolve the food problem?" but "What will it cost if we fail?"

MR. WEISS: Thank you, Mr. Brown. I think this has been a very thoughtful presentation of the problem and Mr. Brown has agreed to take a few questions.

MR. MARTINSON: You did not mention, on the optimistic side, the possibilities of food supplements. Do you think they have any promise?

MR. BROWN: First, let me review some of the nonconventional sources of food. One of these is the possibility of food from the sea, i.e., the idea of using algae or plankton to synthesize food. I think that Jules Verne was writing about this one at least a century ago, but in terms of finding something that is successful, we have not gotten too far in this area yet.

Another one would be the possibilities of using desalted seawater to irrigate the deserts. One day we will probably be irrigating parts of the Sahara and parts of our own Southwest, and perhaps much of the interior of Australia with desalted seawater, but over the next fifteen years I doubt that this is going to become a major factor in food production.

A third possibility would be synthetic foods derived from petroleum or various petro-chemical products. I will point out that any nonconventional food source must meet three basic criteria. It must be technically possible. It must be economically feasible, and it must be palatable. Someone must be willing to eat it. Those that have gotten past the first have very often fallen down on the second, and those that have gotten past the first two have usually fallen down on the third, because changing consumption patterns and developing new tastes in the developing countries are not easy.

One area that I would consider to be somewhat nonconventional, and to offer, I think, a great deal of promise for the immediate future, is the possibility of fortifying some of the more conventional foodstuffs, cereals in particular, with synthetic amino acids. I think both lysine and methionine are being considered here, and we have some projects under way that both AID and the Department of Agriculture are working on in order to begin fortifying on a small scale some of our wheat shipments under the food aid program.

The advantage of this source, in addition to being fairly inexpensive, is that it does not require any changes in consumption patterns. Those who are eating wheat fortified with lysine will never know it. It cannot be recognized in terms of taste. Another of the advantages of this approach is that it is not very costly. A few dollars per ton spent adding synthetic amino acids can improve dramatically the protein value of a ton of wheat. In fact the protein value comes up to be more nearly comparable to that of soybeans, rather than of cereals. This is one area in which we have some hope of making some substantial gains over the next few years.

Are there any other nonconventional approaches that we failed to cover?

MR. WEISS: Fish flour.

MR. BROWN: One of the interesting things about the protein problem is that many countries suffering from serious protein malnutrition are not those with protein shortages. Fish flour brings this to mind. The population of Peru, at least a large part of it, is suffering from severe protein malnutrition. But Peru, interestingly, is the world's leading exporter of such products as fish and fish meal, much of it coming to the United States. In a number of other countries, India being a case in point, there is a great deal of high-quality vegetable protein in the form of peanut-oil meal that is left after the oil is extracted and used for cooking purposes. Most of the peanut-oil meal is either fed to cattle, or even worse, used as fertilizer. Now it is good fertilizer, but it is a very, very costly form of fertilizer, when you consider its alternative uses.

There is a great deal of protein in many countries not being well used; but for some reason we have not been able to really progress in making this protein readily available in the country--although it does not require any foreign exchange--for the diets of the people. There are a few projects under way, but no real dramatic impact yet. Hopefully, this will come. Fish meal is in this category. It is not a new commodity, although getting it into the form where it can be added to foods and still be fairly tasteless is recent progress. It does have some possibility for supplementing and improving diets in the less-developed countries. I think the popular press has recently been overplaying this as almost a panacea or solution to the problem, which I doubt very much it is, any more than are the other things I mentioned.

QUESTION FROM THE FLOOR: A few years ago, it seems there was a wave that swept through Washington bureaucracy, an idea that we could--with our production skill in this country--take on this task of feeding the people in the world. Now, were those people wrong; can we not do it; will we not do it; do we not have the manpower or what?

MR. BROWN: I suppose it is a number of things. This happened in the '50s and early 1960s when progress in increasing food production had been rather encouraging, and the population explosion had not really reached its full momentum yet. There was a feeling of confidence at that time, but I think failure to assess fully the impact of some of the population growth rates now prevailing throughout much of the rest of our world, and failure to take into account the recent demand in Europe and Japan and other advanced countries for United States grain exports, caused us to be overly optimistic. There were a number of factors.

Interestingly, as a number of the less-developed countries ran out of new land and exhausted the great irrigation and other projects characteristic of the '50s, they found it more and more difficult to increase rates of food production. India, where the trend has been gradually leveling off, is the classic case of this. The wave of optimism preceded the period when we began shipping a fourth or a fifth of our wheat crop to India. I think five or 10 years ago we were much impressed with the food-producing capabilities here, relative to world needs. They seem much less impressive today. Not that they have declined; they have continued to increase. It is just that the magnitude of the problem is becoming much, much clearer.

QUESTION FROM THE FLOOR: To what extent is the problem of food conservation in production, processing, and transportation--preventing spoilage--related to the meeting of these needs?

MR. BROWN: There has been a lot in the popular press over the past year or so, especially with reference to India; estimates are that 15 percent or 50 percent, or some part of the food-grain crop in India is lost each year. Someone did a tabulation on the various estimates and studies done recently, and attributed so much lost to rats--I think 25 percent--and so much to storage and so much to transportation, so much to insect infestation, and so forth, and they ended up with 105 percent of grain loss.

But I expect one of the things to remember here is that in these countries much of the grain loss is part of the system. I sometimes use the analogy--and it overstates it a bit--each year in this country we lose some 40,000 lives to automobile deaths. What a tragedy, what a senseless thing; we must do something about it! So we proceed to have more extensive safety campaigns, and proceed to lose at least as many people the next year, and perhaps more. It is part of the system and very difficult to get rid of, and so it is with the loss of grain in Indian villages, for instance. Most of our food grain for United States food shipments to India is stored in modern grain elevators outside of Bombay and New Delhi, and experiences very little loss, maybe 2 percent. But dealing with the village production, distribution, and storage system is a very difficult thing--one that is going to take a lot of research, a lot of manpower, a lot of capital, and a lot of know-how. It is an area we have just begun to work in, really.

I think we are beginning to put more emphasis on this area and, in fact, it is one of the self-help requirements written into the food agreement with India. But it is not going to be an easy one to cope with.

QUESTION FROM THE FLOOR: You said earlier in your talk that we had two major reserves, part of which have been used up. One was the actual food-grain reserve, and the other was reserve lands which are idle, I believe. Later on, in a different context, you pointed out that the last reserves we had were trained and educated manpower. Do you have any ideas on how those reserves could be mobilized overseas?

MR. BROWN: Yes. We talked about the large reserve we have of professional agricultural manpower that might be mobilized and supplied to projects overseas. I think there are a number of things to keep in mind here. One is, we do have, in terms of both government and nongovernment projects, I would guess, 1,500--perhaps upward of 2,000--professional agriculturists working abroad now with the United States government, AID, agricultural foundations, and so forth. In private industries there are more. Some of the constraints on moving these people abroad are (1) finding people in the host country governments who can work with them--counterparts. Sending someone over to develop a farm credit system in a country is fine, but you must have somebody there to anchor him to, somebody to work with. And getting these people is very often a hindrance. Whenever we have worked out a technical assistance program in agriculture, both AID and the Department of Agriculture have found this most often a limiting factor.

There is little doubt in my mind that the number of agriculturists from this and other advanced countries going abroad to work in agriculture in the less-developed countries is going to increase over the next few years. I cannot see any alternative to that. But as to how one may mobilize a number several times larger than at present, and use them effectively--I do not think I have the answer. This is not something I think we will accomplish overnight.

QUESTION FROM THE FLOOR: If we assume that manpower and human resources are to play a vital role in underdeveloped countries, and that outside technology and imports are not enough, is there not also a need for a local organization to produce and to handle knowledge and distribute it?

MR. BROWN: The question deals with anchoring the transfer of our resources to some institution on the other end. It could be cooperatives, it could be farm groups, it could be possibly extension services. There is a whole host of various institutions that might be used.

QUESTION FROM THE FLOOR: An institution that has proved itself effective in this country, which brings a coordinated effort of handling knowledge that is assembled, generated, passed on, and checked is the Extension Service--the land grant college-type of institution.

MR. BROWN: We have been working on this because you have to have the institutions to be effective. I think not only the United States Government, but most other governments as well, have placed agriculture pretty low on the totem pole and it is only now coming up as these countries slowly begin to realize there are no surpluses anymore, and we are not trying to find places to distribute our food on a concessional basis. I think tightening up our food aid program is doing a great deal.

A number of ministers of agriculture who have been in to see us very much appreciate the tighter terms for food aid, because it has greatly strengthened their hands in dealing with the finance ministry when competing for resources. Like you, I am far from satisfied with the effort made to date. Thank you.

MR. WEISS: Thank you, Mr. Brown, for a very interesting session.

Thursday, May 4, 1967

TRAINING MIDDLE-LEVEL AND UPPER-LEVEL MANPOWER

JOSEPH G. COLMEN: Ladies and gentlemen, let me greet you for the afternoon session panel dealing with training middle-level and upper-level manpower. When I was asked to chair this session--it was after an associate of mine found he was unable to make it today--and I learned that the topic of your meeting is the War on Hunger, I wondered what I knew about it, what qualified me to be the chairman. It was something like Euripedes' response to the suggestion that he give a speech on sex; he said, "Sex is hardly a topic for a virgin like me." The War on Hunger is hardly a topic for someone like myself, who has had no association with either side of the issue.

But it is one's point of view that is important in this kind of discussion, I am sure. Robert Benchley, when he wrote his thesis at Princeton, decided on a topic, "Codfishing from the banks of the Potomac, from the codfish's point of view."

This afternoon we have assembled a stimulating and very proficient panel of speakers to address themselves to the topic of training middle-level and upper-level manpower.

My name is Joseph Colmen. I am serving as chairman. I am presently Deputy Assistant Secretary of the Department of Health, Education and Welfare, for Education. My only claim to any connection with this program is some time with the Peace Corps, in which, I guess, we were concerned with training middle-level manpower; and now, a very deep concern with the International Education Act that deals with the training of the middle-level and upper-level manpower for work abroad.

Our first speaker will be Mr. W. E. Harvey. Mr. Harvey is director of the Foreign Training Division of the U. S. Department of Agriculture. Mr. Harvey was born and raised in Virginia, on a tobacco, grain and livestock farm. He is a graduate of V.P.I. in Agricultural Economics. Following graduation, he worked for several years as Assistant County Agent and County Agent in Virginia. He did graduate work at Harvard University in Public Administration. Mr. Harvey served with the U. S. Navy Amphibious Forces in Atlantic and Pacific theatres of operations in World War II.

Since 1951, Mr. Harvey has been with the Department of Agriculture as program specialist, Assistant Director, and now Director of the Foreign Training Division. He has carried out surveys and consultation assignments in several Latin American countries, Southeast Asia, and the Middle East. Mr. Harvey.

W. E. HARVEY: I must tell you something before I get started. Robert Benchley used to say, "Now, before I start talking, there are a few words I want to say." Some time ago my telephone rang at home, my wife answered as usual, and she said, "It's for you," so I picked up the phone and this very attractive voice on the other end of the line said, "Dr. Harvey, I am having a little stomach pain again." And I debated for a moment what my reaction should be, but in view of the probabilities of malpractice, I decided I would just confess that I was the kind of doctor that could not help anybody.

At the outset, I think I should indicate my concept of the term "training." Training is transfer--the transfer of useable skills, techniques, information, philosophy, attitudes, and understanding. It is an intricate complex of objectives--the need and desire to learn and change substance or subject matter, personalities (learners and teachers), timing, facilities, and methods. Training is not accomplished in a vacuum. It rests finally on effective communication.

Training is a central priority because development, once well started, makes continuing but changing demands on a constantly enlarged corps of personnel who are capable of identifying new needs and of planning and adding growth in the proper directions. I assume that among you there is no disagreement with the assumption that the lack of trained manpower is one of the major barriers to economic development. We might also add, I think, that a great impediment to production is the low status of professional agriculturists in most less-developed countries.

In my opinion, trained manpower is not the total answer, not even if all the resources needed are readily available. Trained manpower cannot be optimized unless there concurrently exists an attitude of public service, a desire for accomplishment, a sense for accomplishment, a sense of duty.

Last week, when I visited John Strohm, who is a journalist, an editor, and freelance writer, he used another one of these clichés to catch our attention. He said, "The big race is between the breeders and the feeders, and at the present time, the breeders are winning." And that is what this conference, I think, is all about. That is what Strohm and all the rest of us were talking about. But I do not think we need to dwell too much on the negative. Let us emphasize the positive. On the positive side, we can say that included in our consideration of this whole subject of trained manpower is the recognition that productivity per farm worker in the U.S. has more than tripled in the last 25 years. The average U.S. farmer today grows enough food for himself and more than 30 others, and the really top-notch farmer feeds himself and 200 others.

Dr. Harrar, President of Rockefeller Foundation, has stated the situation very clearly. "The simple truth is that we know enough today, now, to transform the food production of the world. They can produce at least three times what they are now producing on present arable surfaces by the known methods of conventional agriculture. So far as scientific knowledge is concerned, there's no reason why any human being in the world should not be well fed, and there is no longer any excuse for human starvation. The stumbling block is man himself--his prejudices and misinformation, his lack of education and ability to put to work the accumulated scientific and technical knowledge that lies at hand." An old proverb says, "If you give a man a fish, you feed him for a day. If you teach a man to fish, you feed him for a lifetime."

For purposes of clarity and simplicity, I propose to devote this part of my brief discussion to the training provided in the United States and so-called third countries. The second part of what I will have to say will deal with training in the home country.

Training in the United States: By and large, the types of people who can be best trained in the United States are those occupying middle-level or upper-level positions. I rather think our greatest contribution can be in the area of nonacademic training, though some academic training has its place. Training at the undergraduate level under AID auspices is declining, which is as it should be, and I anticipate that this trend will continue. I well remember the first group of Nigerians who came to the United States under the AID auspices--over 100--most of them starting in at the freshman level. I was the last man of the long array of AID and State Department people to talk to them, and I wondered what in the world I would find to say to these 100 bewildered, puzzled Nigerian agriculturists that had not been said.

What I did say, I felt honestly was quite in order. You know, you get an inspiration now and then that impresses you, even if it impresses no one else. I said simply to these 100 Nigerians that they were beginning what I considered to be a very hazardous and difficult endeavor, hazardous in the sense that it was likely that they would be here for four years, at a minimum, some studying veterinary medicine for longer, and that to withstand the opportunities and the inclinations to become Americanized and thus reduce their usefulness to Nigeria when they returned, if they indeed did, was, I thought, quite a problem.

For years our main emphasis in implementing training has been on technical objectives. One of the important reasons technical training is now somewhat less important than formerly for the leader types is the great sophistication and specialization of agriculture in the United States. It is no longer easy to find operating situations closely resembling those of less-developed countries, so we have to do the best we can by emphasizing the basic principles connected with the subject matter needs of the visitor. Another reason is the fast-moving developments in agriculture both here and around the world. Many of the present production practices will be passé in 10 years or so, even in the developing countries.

Training in the United States should include practice--working here on the kind of job they would be doing back home. Training should include a constant tieback to home country situations. The visitor should be involved in developing a plan or a program which he conceives as being useful when he returns home.

Some foreign graduate students in the United States fail to get maximum benefit from their studies because their thesis problem is generally based on United States situations, United States data. Therefore, in order for the graduate research to be meaningful and at the same time provide helpful data for the home countries, we need to find means by which the thesis could be developed out of research conducted in the participant's own country.

United States training for all agriculturists, and other subject matter fields also, should include exposure to good management principles and techniques. It should also involve them in an analysis of developmental processes. These are two facts of training we have introduced into the USDA-AID effort in the past year with what appears to be a considerable degree of success. Little has been done yet on another important area: how to organize, plan, and carry out a training program on a continuing basis in the home country.

So much for the technical phases of training. What about the nontechnical? For some types of visitors the nontechnical may be of even paramount importance, and this is particularly true for upper-level manpower administrators, legislators, managers, planners, program directors.

When I talk about nontechnical training for agricultural scientists and leaders, I mean that complex of things which have made our rural society what it is, the ingredients which have brought the production and marketing system to its present level of efficiency.

For example, every middle-level and upper-level foreign agriculturist should gain, while he is here, a pretty clear notion of the role of extension and research, how credit is provided and used, the nature of our tax structure, particularly at the rural level. He should learn something about our system of education, how farmers band themselves together to form cooperatives, farm organizations and the like, how our farmers participate in local affairs.

These nontechnical components of training should not be presented in any formalized or structured fashion because to do so would smack of propaganda. Rather, they should be observed naturally and as a part of the ongoing technical training program. Let us not forget that the maturing young scientist here to study plant genetics or animal nutrition may in three or four years be the Minister of Agriculture or the National Director of Land Reform, so we need to give him as broad a base as possible.

So much for training in the United States. Let us talk about training within the home country, which I think is far more important. The home country is where about 99 percent of the training must occur.

With development of indigenous institutions, the number of foreign students who come to the United States for undergraduate training should decline. This, I think, is already taking place. I think this is all to the good if our university colleagues do not talk the best ones into staying and thus contributing to the brain drain.

The lack of trained, professional agriculturists grows in part out of the low status of agriculture and those associated with it. It was this way in the United States two generations ago. Of the 80,000 foreign students in the United States only about 2,500, something like three percent, are enrolled in agriculture and home economics curricula. This is a rather fantastic statistic when you think of the dependence of the world on the population which lives on the land. And of this 2,500 who have been in agriculture and home economics curricula, about one-third are under AID or FAO sponsorships. So if that were removed you would have something like two percent.

But I predict we will see changes occuring in this way of viewing agriculture that will see its prestige elevated, as the role of the food producers and the professional agricultural leaders becomes more crucial.

There have been many instances where United States-trained people have returned home to carve out outstanding careers; thousands of them have had real impact. But all too often they have been like a small oasis in the desert. This oasis needs to be changed to an irrigation system.

I propose a bold new endeavor to rapidly expand and elevate the middle-level and upper-level manpower pool in the less-developed countries. In most of them there already exists a useable infrastructure. What is needed additionally is a dynamic new apparatus to provide training leadership and coordination. Inherent in the creation of such an instrument is the recognition on a national basis that training of middle-level and upper-level staff in massive numbers is of prime importance. In any developmental plan this training strategy should be prominent.

The leadership and coordinating organization--for the sake of illustration we can call it the National Institute for Continuing Education--should be adequately funded and staffed.

The staff of this Institute would be largely planners, stimulators, legitimizers. The training would be done largely by the people in the organizations where the staff training is needed. Various types of extension training would be provided by experienced people in the extension organization. Research employees would be trained by people in the research organization.

The United States-trained people, former participants, and others could make significant contributions in such a program. They would be more or less like leavening in the bread. I suggest that AID and USDA and other participating agencies could provide a tremendous assist in helping to organize backstopping for such an effort. Further, I suggest that some such commitment on the part of countries be strongly pressed in connection with the self-help concept.

We in agriculture train as many people as we can on a group basis. We are making an effort this year with a number of these groups to tie the training in the United States to training which will occur back home. We are hoping that when a man is selected to come to the United States that there will also be a commitment that when he returns home he will perform certain training functions and that he will have the backing of the AID mission and the backing of his government in doing this.

We have trained a lot of people here in public administration and agricultural development. About 18 months ago we realized we had trained eight people from the Sudan in these fields. What is the point of bringing more people from the Sudan here for that training? Why not organize these eight people to duplicate the training they have received here for large numbers of Ministry people back home?

This was exposed to the mission, which very quickly accepted the idea. The result was that a training course was organized in the Sudan for the middle- and upper-level Ministry of Agriculture officials--about 30 the first round. It was very successful. The Sudanese did all the teaching. We just provided a little motivation and stimulation. They have on their own initiative gone ahead with an additional training program. We have done this since then in other countries. There has got to be some national impetus to make this operate on a massive scale in order to make a dent in the problem.

MR. COLMEN: Our next three speakers will serve as discussants, in part to elaborate on or to take issue with Mr. Harvey, and in part to advance new ideas of their own.

Our first speaker is Mr. Douglas D. Caton, Director of the Agriculture and Rural Development Service, USDA, AID since 1965. He was born and raised in Northwestern Montana. He was a Special Agent with the Counter-Intelligence Corps of the United States Army Air Force, received his bachelor's degree, master's degree and

Ph.D. in Agricultural Economics at the University of Wisconsin where he was an Honors Graduate. He did post-doctoral work in agronomy and range management at the University of Idaho, and in mathematics at the University of California.

He has been an agricultural economist at the University of Idaho, the University of California at Davis from 1951 to 1965 and for three or four of those years was also Head of the Western Regional Economics Studies of the U.S. Department of Agriculture. He has done research in production economics, research development and policy, land utilization, and research design. He teaches marketing, farm management, land economics, and agricultural policy.

He has an impressive array of more than 80 publications to his credit. I give you Mr. Caton.

DOUGLAS D. CATON: Well, I do not have much in the way of a direct comment on the paper, other than to say this thing breaks down to the numbers and skills required, to the time and place, the trainers you have to have and their training capacity, the program planning and the cost--which has not been mentioned up to this time--and then the effective implementation and utilization of the skills that are developed.

Under duress, I became Chairman of the Educational Section for the Water for Peace activity a year ago. We had the task of deciding or determining what would be the educational requirements if we are going to undertake the full development and utilization of the world's water resources. We broke this down into decisionmakers, teachers, scientists, managers, technicians, laborers who were skilled and semiskilled, and laborers who were unskilled. Then we developed the cost estimates for undertaking this assignment and it was horrendous.

For just 10,000 of these at the rate of $2,000 a year (we figured it would take 10 to 20 years just to get about 10 or 15 percent of the total complement needed), it ran $200,000,000 for a 10-year program. This is something to keep in mind when you are talking about training.

As far as training is concerned, we have to do something about building the whole corps of middle-level technicians that is needed. In my opinion, this is a very strategic group as far as agriculture is concerned, because it is the main means for generalizing agricultural development--of getting the science and technology out on the farm and showing the peasant or the traditional farmer how to do the job.

At the same time, in training we have to be aware of the need in terms of the absorptive capacity of the individual, giving full recognition to the requirements of the job to be undertaken. It is one thing if you have a literate group of people you are working with, who can read and write and who can comprehend and have been exposed to problem situations. It is another if you are working with a group of illiterates who have to be trained in this regard in addition to the giving of the technical training that might be required.

You also have to recognize that you are dealing with a range of skills--the range up to just below the policy decisionmaking level down to that of the semiskilled laborer. You are dealing with a whole array of the economy from extension people to managers of farms and firms to managers of infrastructure institutions, credit facilities and the like. You are in fact training people who in turn will be trainers of other people.

What I would like to know, if I am going to bring up the food production in Nigeria to the necessary level, is what it is going to take in the way of economic input and skill input to give me a specified level of corn production. I would need to know also the rate of population increase and demand characteristics. Then I can say what size of institution I am going to need, where I am going to put the emphasis, and what teachers will be required. Also whether I am going the plant breeding route or the genetic route, and whether I want those who are good in adaptive research, the so-called economic specialist who is a production specialist rather than a plant breeder. Then I can decide where I am going to put the mix in these two regards, and I can only determine this if I know the indigenous capacity that I have, the kinds of products and materials I have got to work with, and what will be required in terms of qualities and quantities. If you do not think this is the kind of decision you have to make, you are just fooling yourself.

And then how are we going to get these materials and people out to the farm, get the practices adopted and then have the necessary markets and roads and pricing mechanisms that are needed? What is the effective demand situation, and is it enough to bring to the individual families all of the nutritional requirements that are needed? What substitutes in the way of other programs must simultaneously be developed, and what people will we need for such programs?

So we have to recognize the tremendous range of skill differences, the tremendous range of training that is needed, and whether this range is from on-the-job training to technical training or training involving advanced degrees, whether we are dealing with illiterates, or whether the farmers themselves are equally literate or not literate.

It is different working in the Dominican Republic than it is working in Taiwan or in the Philippines. Land reform in the Philippines does not work the same way that it worked in Taiwan. In Taiwan the so-called peasant-farmer was a decision maker. In the Philippines he was not, and this distinction was the reason for the failure of land reform in the Philippines to date, and the success of it in Taiwan.

We have to also recognize the capacity of the people that we are training, and the kinds of skills and levels of capacity of those who will train. I think we would also want to know what it would take to attract those who are trained in agriculture, in the way of incentives, both social and economic incentives.

We also have to recognize the policy and program barriers in the way of institutions, administrative planning, and sheer logistics of support. The discouragement of the Filipino Extension people that I have talked to has been primarily based on the lack of logistic support. They are fairly well trained, they are eager. They have a capacity for work, but they have no money, no jeeps, and nothing of their own and nothing in the way of materials. If they order it, it never seems to get there.

So, it is not just putting a man in place who "has been trained" with nothing surrounding him to allow him to bring about the implementation that would be required. You have a whole set of institutions and policies that have to be commensurate with the training program in order to make it a reliable and useful enterprise. One has to get squared away on the cost of implementing the program. If it is more than can be handled by the country and by the individual donors, what are the priorities both in time and in numbers in order to undertake any semblance of a program?

Beyond this, the countries themselves have to develop their individual capacities to train and implement. We can do so much. We can put so many people in the field; we can bring people over here, at what I think is a very exorbitant cost, and train them. Many of them are lost in transit on the way back, they do not go back to agriculture, and a lot of them stay here.

A training activity in the field supported by a donor country which does not in fact truly train but merely prolongs the academic exercise, sets up a sort of mausoleum which the students enter and never return. They become like monks in a monastery. They never really think about the farm or the means of implementing knowledge and technical assistance, and we, in fact, are diluting the opportunity and the capacity of that country to develop its own agriculture.

MR. COLMEN: Our next speaker is Joseph A. Cavanaugh who is the Chief of the Manpower Research Division of the Population Service of the Office of the War on Hunger of the Agency for International Development. Mr. Cavanaugh did his work at Eastern Washington State College and received a Ph.D. from the University of Washington in sociology. He has been a professor of sociology at Western Washington College and the University of Washington. He served overseas in Lima, Peru, for eight years for the Public Health Service and AID's predecessor agency, International Cooperation Administration. He is a demographer with a special interest in manpower and family planning research. Mr. Cavanaugh.

JOSEPH A. CAVANAUGH: Thank you very much, Mr. Colmen. In order to focus my talk today, I have chosen to deal with manpower training needs and costs, in relation to population and family planning. A systematic program for training in population is just now being organized in AID with the establishment of the Manpower Resources Division, Population Service, Office of the War on Hunger. AID-supported activities for training thus far have involved grants to three universities: Carolina Population Center at the University of North Carolina; Population Studies Unit, International Health Division, Johns Hopkins University; Family Planning Studies Unit, School of Public Health, University of Hawaii.

These universities train both foreign and domestic personnel. Johns Hopkins offers fellowships to foreign candidates and qualified population officers. AID Washington is starting to staff the Population Service with qualified population personnel. The AID Regional Bureaus have part-time population personnel, except the Near East and South Asia Bureau which employs a physician who spends full time on population affairs. Especially in countries that have adopted official or semiofficial policies on family planning, manpower shortages, in addition to other restraints, have seriously affected program implementation. This is especially true of large countries like India which require that women doctors, who are in short supply, must insert interuterine devices (IUD's). Basically, so far, the Indian program is an IUD program and not a pill program, as they say in the Population Service.

A rash of short-term or orientation sessions have been established, some with AID assistance, training physicians, nurses, midwives, and social workers, etc., for family planning work. These orientation sessions--I really do not call them training sessions--have been established in El Salvador and also in Mexico. Programs for more sophisticated and comprehensive training have not been developed as yet. However, regional centers for studying population, staffed with trained demographers for research, have existed for some time. An example is Salada in Santiago. Salada is the Central American Demographic Center. The Demographic Center at the University of Cairo is still another example, and there are also several centers in India.

The Economic Commission for Asia and the Far East (ECAFE) is considering establishing such a center in Bangkok, and discussions have centered on the establishment of demographic training centers in Africa. Recently a new center, which is really a subcenter of Salada, has been established in Costa Rica; it will be regional for Central America. Some individual countries such as the Philippines also have demographic training centers.

In the United States two types of training facilities are available. One type which is sociologically, demographically, or economically-oriented is usually located in departments of sociology or economics. The other type which is more oriented to public health and family planning per se, is always located in schools of public health. Too few of either type are available for adequately training the great numbers of personnel that will be needed. For middle-level personnel there are almost no training facilities whatsoever. Middle-level personnel refers to social work assistants, midwives, and personnel of that type.

Population and manpower are interdisciplinary in character. Manpower needs involve many disciplines. Among these disciplines are: social workers to assist in motivation and work with families; nurses to help administer clinics;statisticians to assist in evaluation; demographers to measure population change; health educators to assist in motivation; economists to study relationship between population and economic variables; research workers of all types to fill in gaps in our information; and physicians to administer clinics and assist in program orientation, not to mention midwives to physically assist in inserting of IUD's where the IUD program is popular.

The Agency for International Development now has a policy for supporting universities and foreign institutions for training population and family planning personnel. It is hoped next year that roughly $2,000,000 to $3,000,000 will be available, with progressively increased amounts being provided over the next five to 10 years.

We have been considering varying elements of an effective program for training personnel. One of the most urgent needs is to train and provide AID personnel for its Washington office and overseas missions. At least 20 full-time professionals are needed in Washington and at least 30 to 40 in various overseas posts. Although there are certain constraints, the training of people for these positions should involve:

First: Retraining AID personnel--especially those who have already been working in health in overseas posts, speak one foreign language, and know something about the AID mechanism. These people should be retrained for three months to one year. If we could call on this pool we would be able to add 20 well-qualified people who have many of the basic requisites for population and family planning technicians. The only thing that they would lack would be training in the substantive aspects of demographic surveys and family planning techniques themselves.

Second: The provision of mid-career fellowships directly from AID or through a foundation. I do not think that AID at the moment has the authority to award fellowships in the same sense that the Public Health Service and NIH have. If we could be given this authority in some way or another this would assist in this retraining program, in financing, and would make it much more attractive to people who wish to retrain during mid-career in population and family planning.

Third: Expanded support of existing training facilities and the creation of new ones for training younger personnel. I am referring mostly to existing facilities in the United States, but it would be necessary to support foreign institutions as well. For training foreign personnel, especially in countries in which AID is materially assisting, facilities should be provided in addition to those available in the United States.

Greatly expanded country and regional training centers are needed, especially in Africa and the Near East, both in demography and family planning. Also AID participant training must be increased.

To conclude, training for family planning depends on how the program is going to be carried out. If the health model is used--and by that I mean a health facility in a country, the health post, the health centers--for administration of family planning programs, more technical personnel will have to be trained. However, if a country feels that the health model is too expensive or too elaborate or there are not enough health facilities, it may decide to use what we might call a condom-pill program. In other words, pills would be used, would be readily available in grocery stores, in drugstores, and they could be gotten without prescription; condoms also could be gotten very easily. When that kind of program for reducing high rates of growth is used, obviously a lesser amount and a different kind of skilled people would be needed. I emphasize considerably the training of rather highly technical people, especially in the area of demography and also in family planning, because so far most of the countries are using the health model. They are justifying a rather delicate type of program as a health measure, and are using the facilities that are available and expanding those facilities to accomplish the objectives of the program.

MR. COLMEN: Thank you very much, Mr. Cavanaugh.

I would like to introduce to you our last panel member, Mr. John S. McCauley, who is Director of Manpower Training Operations for the United States Employment Service of the Department of Labor. Mr. McCauley holds his bachelor's and master's degrees in labor economics from the University of Wisconsin.

He received his Ph.D. degree in labor economics from the Harvard Graduate School of Public Administration where he was a Littauer Fellow.

Mr. McCauley has held positions with the Labor Department in the Wage Analysis Branch of the Bureau of Labor Statistics, the Occupational Service in the same Bureau, and was Chief of Research for the Bureau of Apprenticeship and Training. Mr. McCauley was visiting Professor of Industrial and Labor Relations at Cornell University in 1960 and 1961.

JOHN S. McCAULEY: Thank you very much, Mr. Chairman. I would like to make a few brief remarks on that aspect of training which is not connected with our formal educational system, and I would like to draw upon some of our experiences in this country in the administration of the Manpower Development and Training Act, which during the last three or four years has trained about 700,000 workers in approximately 7,000 different training programs. I would like to recommend the report, The Manpower Report of the President, which was prepared by the Department of Labor in cooperation with HEW and other agencies, and which incidentally, has a very interesting chapter on underemployment and poverty in rural areas in the United States.

Now, in thinking about this experience in the United States and trying to select some aspects of it that might be of interest to you today, I have decided to concentrate on just one of these programs. This is a program that was developed after quite a bit of consultation in Washington, a program in education and training in rural areas. This was developed at the request of the Cabinet-level Committee on Rural Manpower which is chaired by Secretary of Agriculture Freeman. Mr. Walter Arnold of HEW and I are the co-chairmen of this task force and we have membership on the task force from Commerce, Housing and Urban Development, Small Business Administration, Agriculture, and also several of the independent agencies.

Prior to going out to three countries which we felt were rather far down on any index of economic well-being, we talked about our objectives, and I think you will be interested in one of these. That is, to demonstrate that a cooperative educational effort based on local involvements will develop indigenous leadership, individual dignity and initiative, and community awareness resulting in continuing community development.

In other words, right from the very first we were trying to think of some of the indirect effects of our activity on development of community leadership and building up a sense of commitment in these rural counties that would guarantee that other training efforts would spring from this. We wanted to take all the precautions we could against the image of a group of people coming in from the outside to solve all the problems, and we tried to emphasize responsibility of people right on the spot.

Now there were five general approaches that we emphasized, and I will summarize these five.

First, the specific education programs must be designed to meet the needs identified by special surveys or other local consultation carried out in collaboration with local advisory committees.

Second, every resident of the pilot counties was to be considered a potential participant. However, preference would be given to those needing additional education and training in order to qualify for employment.

Third, the right of each individual to decide the nature and extent of his own participation was to be respected. Persons desiring education in order to qualify for employment outside the county would receive the same consideration as persons who planned to remain in the county. And I think this has some implications for the problem of some foreign countries.

Fourth, each agency's normal channels of communication, administration, and project funding were to be followed to the fullest extent possible. In some of our earlier experiences we found a great deal of difficulty resulting from a feeling that one particular agency was trying to dominate the activity, and as soon as we made it clear that every agency's rights were to be respected in these matters, it was amazing how quickly cooperation became evident.

Finally, a coordinator, under the general supervision of the National Task Force, was to be employed in each county. This raised a serious question as to how these coordinators were to be picked and whose payroll they were to be on, but I think that we managed in a way so no one could claim a predominant share of responsibility. For example, our coordinator in Arkansas was picked by the Department of Labor. The one in Minnesota was handled by the Extension Service under Agriculture. The one in Arizona was picked by vocational educators. You might be interested in the kind of people we got. We were experimenting there.

In Minnesota we got a County Agent who had been highly successful, and we managed to get him a salary increase to come with this project for a couple of years. In New Mexico a man who had been in charge of trades and industrial education was picked. He speaks several of the languages that are important there and is conversant in Spanish and will be able to get along very well with the Indian population.

In Arkansas, after a great deal of soul-searching, we stole the high school basketball coach, who had been very successful for 15 years. We gave him a $1,000 a year promotion, and we feel that in some ways he has been the most successful of all in building up the spirit of community cooperation and support.

The actual programs that have been developed have covered a wide range, such as general farm improvement programs, farm machinery operation, farm equipment repair, automechanics, health occupations, and a few of the higher-level occupations. These programs have been in operation approximately one year and they are going to be continued for another year. We have received a request to add counties, and we are going to do this in Arkansas and possibly in Minnesota. A decision has not yet been made as to whether these should be extended to other parts of the country or just how this would be done.
In conclusion, I would like to emphasize that in this rural project we felt that our keeping it tied very closely to local conditions, emphasizing and reacting to needs identified in a very specific way in a locality, and

finally having someone who has lived in this community act as a coordinator, has resulted in some very successful programs.

DISCUSSION

MR. COLMEN: Thank you very much, Mr. McCauley.

Well, I wish I were in a position to try to summarize the excellent and stimulating remarks of our panel members. They ranged from family planning to training here for AID participation through the Manpower Development and Training Act. I think perhaps the best way we can use the remaining time is to open to the floor questions and discussions.

EUGENE C. MARTINSON, AID: I wou'd like to ask Mr. McCauley whether the variety of efforts in developing manpower that you described could be transferred abroad.

MR. McCAULEY: Well, one point I would like to emphasize is we deliberately picked counties that were in serious need and had quite a bit of unemployment. Incidentally, in this county in Arkansas, the population was probably around 30,000, and we found almost 1,000 families without any indoor toilet facilities or indoor plumbing. The Public Health Service is working with us in a program there.

One of the techniques that we were especially proud of is the device for talking with people right in the community as to the specific things they need. These training programs were not developed somewhere on the outside. They were developed right in the community.

I have a 15-page summary here. I will not go into it now, but any of you who have more interest in these three pilot projects might want to take home a copy of this. I will leave it right here on the table.

MR. COLMEN: Thank you. Are there any other questions or comments? Mr. Vinogradoff?

EUGENE VINOGRADOFF, Department of Labor: Mr. Cavanaugh, how successful have been the AID programs in population control, specifically in Pakistan and India?

MR. CAVANAUGH: It depends on how you define successful. The program in India is not a grand success at the moment. The IUD as a contraceptive is not working out the way they thought it would work out two or three years ago, because about 30 to 50 percent of the IUD's inserted are removed at the end of 18 to 24 month periods. You can see that $1,000,000 put into a program to insert X number of IUD's really costs $2,000,000, or you can put it another way, you only get $500,000 worth of protection. That is not so important in itself. The point is that really there are not enough IUD's being inserted in India. They estimate that there are around 100,000,000 women of the child-bearing age, and at least 50,000,000 of them would need IUD protection to cause an appreciable decrease in the birth rate.

At the present time they estimate that there are not over 5,000,000 women protected. This has been after considerable effort and it is the third or fourth year of their five-year program.

On the other hand, Taiwan has been tremendously successful with a nongovernment program in which a combination of the IUD and the pills has been used. Hong Kong also has been tremendously successful. But it is an urban area and the means of communication are much easier.

In Pakistan I think they are beginning their second year of the program, and they are able to reach the quota set up. Of course, Pakistan is a much smaller country than India. Costa Rica is just starting a program. They have just announced that it is going to be national policy to do something about their rapid rate of natural increase, estimated at around 4.2 percent. There are other countries that are just starting. It is too soon to say whether they are successful or not.

MR. MACRIS, The World Bank: Mr. Caton, what definition would you give for the middle-level as distinguished from the upper-level manpower?

MR. CATON: I would say the middle-level manpower is the status that is occupied just before one becomes upper level. I really cannot answer the question. I do not think it lends itself to a precise answer. I think of middle-level and upper-level manpower in the context of our remarks here more or less as the professional agriculturalist. This is an oversimplification but I think this is what we are talking about.

MR. COLMEN: Mr. Vinogradoff, did you have something you wanted to add to that?

MR. VINOGRADOFF: I want to differ with Harvey, if you do not mind. In Pakistan we used the band from semiskilled to subprofessional level or, if you want to put it the other way, semiskilled to technical level, but not college material.

MR. HENDRIK MUGAAS, Department of Labor: I have a question for Mr. Harvey. I got the impression that the people to be trained would largely be in government agencies. The people who have control of what is done on the farm in any of the Latin American countries are the big farm owners. How do you reach them, and what are the problems involved?

MR. HARVEY: Of course they are not the kinds of people we are talking about here. My observation of the Latin American scene is that these are the kind of people that really do not need much training and help. In one or two of the countries that I know best in Latin America, these kinds of people have their own research facilities on a private basis and their own marketing apparatus, so they are not the people that I think we need to be greatly concerned with. We need to be concerned with those people who have potential of becoming more than just marginal producers, more than just subsistence producers, people who have opportunity to help fill the gap between the very low class and the upper class of farmer -- the large middle class.

MR. McCAULEY: I would agree completely with this if we are thinking in technical terms of trying to improve our ability to turn out agricultural production. But I think when you broaden your consideration a bit more to include such things as community planning and community leadership, you do have to somehow involve these larger landowners if for no other reason than to get them to take some responsibility for training the people that they employ. This is a pretty difficult thing to do, but I think eventually a real human resources development program has to involve all the people in the community one way or another.

MR. CAVANAUGH: It depends on what you are trying to do. If you are trying to maximize the productivity of all arable land, of course you want to reach him, and maybe you will have to take land away from him.

MARVIN P. MIRACLE, University of Wisconsin: I want to ask a question about the brain drain. I get the impression that this is a cost--a leakage--that varies from country to country, and I wonder what data we have on this. To what extent does it differ in one underdeveloped country as compared to another, and if it differs substantially what are the variables involved that we know about at this point?

MR. HARVEY: I read in an editorial of one of our national farm publications that a great percentage of AID-supported people who come over here do not return. The actual fact is that the number that do not return is negligible in the field of agriculture. In the neighborhood of one-half of one percent of the participants who come here fail to return. They are under a bond or under an obligation to return. If they do not return of their own volition they are returned by other means.

Now, Miss Taylor has been doing some special work on this very subject. Miss Taylor, would you like to add something?

ROBERTA TAYLOR, Department of Agriculture: I have been trying to do some research to find out what the brain drain is in agriculture and whether it exists or not. It is not really a problem as far as our agricultural trainees who come here are concerned. Most of the people who come here are under an AID contract and are required to go back to their countries and serve for at least two years. There probably are a few who break this, but it is not much of a problem.

For the ones who do go home and serve their two years, very few then come back to the United States. The State Department has some figures for the past year, and out of perhaps 3,000 who were training here in agriculture, only six returned to the United States after their two-year period. I think the large percentage of these came from either Iran or the Philippines.

One of the reasons we do not have a problem in the brain drain among agriculturists is that in the United States the percentage of students who have been studying agriculture in our colleges has been decreasing, and the proportion of agricultural scientists in our total scientific and technical manpower has been decreasing also. The United States does not have demand for a large number of agriculturists like we have for engineers and other natural and physical scientists. I think this is one of the reasons that people from the less-developed countries who are trained in agriculture in the United States do not stay here. There is just not the demand for their services in the United States as there is for some of the other people that we train in the United States, so they go home.

MR. COLMEN: It has been a fascinating discussion for me.

Thursday, May 4, 1967
INCOMES, PRODUCTIVITY, AND THE WAR ON HUNGER

LEON GREENBERG: I have some supplemental notes for the program which indicate that the panel is going to deal with, on the one hand, the effect of income, nutrition, and other factors on productivity, and on the other hand with the effect of income on nutrition, health and related factors. The panel will be dealing with highly interdependent variables and factors, factors which have a continuing and accumulative effect on each other. We hope that these effects will be positive. If not, the problems that we have been discussing at this session on War and Hunger will be aggravated rather than improved.

Most people recognize that the basic ingredient of a higher standard of living is productivity. If we were to rank countries on the basis of their standard of living, that ranking would look very much like the ranking of countries based on national productivity. The similarity in these two areas occurs because higher productivity provides the potential for higher income and in turn better health and a higher standard of living. A factor which is often ignored is that higher productivity alone is not sufficient. The benefits of higher productivity have to be shared by the many and not just reside in the hands of a few. This principle was well-recognized in Europe after World War II when they started their program of industrial recovery and expansion. They had plenty in the way of technology and management methods and so on, but fortunately they recognized early enough in the program that technical factors would not be sufficient, that the gains in productivity and the gains in economic output would have to be shared with the general population.

If we agree that one important road to health and income is via productivity, we are on our way. We can start by improving productivity. Now, how do we accomplish this? Technology is basic, but no matter how advanced technology is, it requires a work force that has the capacity to operate it, to expand it, and make use of its potential. A work force influenced by and perhaps enfeebled by poor health is not going to be able to maximize the potential of this technology.

Our first speaker is Mr. May who is the Medical Director for the Nutrition Section of the Office of International Research at the National Institute of Health. He has worked for AID in Saigon, Vietnam, serving as Chief of the Medical Education Project; he set up the Saigon Medical School and taught public health.

He is a Knight of the French Legion of Honor. He served as advisor to the World Health Organization, served on the faculty of the School of Tropical Public Health, Harvard, where he retired in 1959, and he is also an Associate Professor of International Health at Georgetown University Medical School.

JACQUES M. MAY: Before we go into the importance of nutrition in productivity and in health, welfare and development, I would like to remind you of a few physiological and medical facts about nutrition.

It is amazing that while man has for millions of years had to produce food to survive, it has only been very recently that we began to understand the complexity of the problems of food, human behavior, and productivity.

I suppose we all know that in order to survive and to produce we need sugar for energy and a number of other nutrients for the growth and development of the tissues, for defense against infectious disease, and for many other of our human functions. The interesting part of this is that these factors are all very closely interrelated. For instance, the amount of thyamin that is needed varies with the amount of sugar and calories that one consumes. On the other hand, it seems that the amount of riboflavin is independent of the amount of calories consumed. All these factors vary with each other. Some of them we compute in grams per day or kilograms per year. Other factors we compute in terms of milligrams or even micrograms. There is a wide spectrum of factors to be understood if we want to ascertain that a given individual has adequate nutrients to survive.

Since these factors are related, we can take any one of them as a variable. For instance, calorie intake varies with a number of subsidiary factors: with age, with sex, with physiological status, with degree of infection, with the climate, with the size of the individual and the surface of his skin.

This relationship between the number of calories and the climate in which man lives is extremely important because the ability of the human body to adjust to what it gets means that, given a limited amount of energy and fuel intake, man will try to survive within the limit of what he can spend. The result is obviously that he will try to minimize the effort needed to control his environment, and if he does that he will minimize the productivity of his environment.

It is quite typical, for instance, that when you try to induce an African farmer to cultivate a larger plot, his answer will be, "Why?" And if you tell him that he is going to be richer, he will not be interested. He does not see why he should be richer. He is interested only in the small plot that he knows he can cultivate without too much fatigue. If you tell him that a better seed will give him a better result he is delighted, not because he is going to have a better yield on his plot, but because he can reduce the size of the plot in which he cultivates the seed.

Another aspect of this which is important is production of cash crops in such environments as I have just described. For instance, in Cameroon it has been observed that introduction of cash crops results in a division of labor: the men doing the work on the cash crop, and the women doing the work on the food crops. Now, in the African culture women are fed second. The men are fed first. As a result the diet of the women is very poor. In addition, the women have pregnancies, lactation, and other burdens. The production of food, according to the law of adaptation which I just mentioned, is lessened further by the fact that it is the women who produce the food in that culture.

Another factor which was not even suspected until very recently is the importance of certain nutrients for mental and intellectual development. It had been known from experimentation that rats which are fed a low protein diet will produce a generation of animals that will not respond to stimuli as widely or as promptly as a well-fed control group. It has been discovered also that the quality of the protein given to the rats influences the quickness of their response and the spirit of response to a number of stimuli.

It has been found that litters of poorly fed rats are apathetic, and even the quality of apathy can be related to the quality and quantity of food consumed.

Now all these animal discoveries have in the past five or six years been studied in human beings. This study is extremely difficult because you cannot feed human beings experimentally. You have to select groups, and controls do not come easily. However, a number of factors have been discovered.

In Mexico City, for instance, Dr. Pravioto has drawn the attention of the world to this phenomenon: he has found that even after children who had been hospitalized for treatment of malnutrition had recovered, the promptness of their response to certain intellectual stimuli remained slow. This experiment has a great significance, and has been broadened to other population groups. This evidence leads to the strong belief that the damage caused to the central nervous system and to the brain by early malnutrition, most probably in protein, results in irreversible damage to the cognition faculties of the individual. This is not proved but strongly hinted at by the fact that the older the child suffering from malnutrition, the quicker the recovery. There seems to be a correlation between the development of the central nervous system in the fetus and during the first two years of life, and the degree of alteration of the central nervous system in the infant as measured by the infant's performance under the behavioral stimuli later.

An argument has been brought up by the psychologists against the idea of the organic base of these phenomena, that is, that a cultural factor must be playing a role in that the parents of these children have low IQ's and are of a low intellectual level. Some psychologists contend that this is the cause of the retardation of the child, not the malnutrition. This is all right except that the parents also have suffered from malnutrition. And that does not solve the problem at all. It is quite possible, on the contrary, that it compounds the probability of malnutrition being a very important factor in the intellectual development of the individual.

I will mention two more points on the basic importance of nutrition on behavior and productivity.

When I was in Saigon, a study was made to try to find how many blind children there were in that city. We found that there were 50,000 blind children in the city, and we have good reason to believe that this blindness is due to lack of Vitamin A in the diet. The relationship between blindness and Vitamin A is established, and in Saigon, where there is no glaucoma and very few other causes for blindness, we are satisfied that it is the lack of Vitamin A in the diet or the lack of carotene which the body transforms into Vitamin A, that is responsible. A few drops of red palm oil, a few more yellow sweet potatoes could have prevented it.

Then there is the well-known need for iodine in the diet, which prevents the development of goiter. World Health Organization has established that there are at present two hundred million goitrous people in the world, five or six percent of them being cretinous, completely unproductive, and a burden on society.

MR. GREENBERG: Thank you, Mr. May. Some of those remarks about malnutrition were very interesting to me in the context of our own society. We often hear people question whether in the years ahead we are going to have a labor force that has the capacity to work in an environment of vast technology. Some say that we will have too many people who do not have intellectual capacity, and I imagine that in this country, as diets and nutrition improve, our total intellectual capacity can be elevated, too.

The next speaker is Mr. Forman, who is Acting Director of Nutrition and Child Feeding Service of the Office of the War on Hunger of the Agency for International Development. He has been Director of Settlement Houses and Community Camps in the Philadelphia area and served as Director of the International House of Taipei from '57 to '59. He served as Education Advisor and Social Welafre Advisor in the Republic of China. He has been Chief of the Food for Development Branch in the Office of Material Resources, AID. For the past five years he has been responsible for the operation of the grant and donation portions of the Food for Peace program.

MARTIN J. FORMAN: A number of comments that were made by Mr. May are quite significant in terms of development overseas. They are very pertinent to the activities being carried on in the War on Hunger.

The real implications of these findings have not yet been felt. People have not yet reacted to them overseas. Many of you recall the debate which always went on between nature and nurture and heredity versus environment. As a sociology professor I was very much involved in this kind of thing myself. If one looks at a group of people, a racial group or an ethnic group, and says, "These people seem slow, they seem to be plodding, they seem dull, they do not seem to catch on"--and many of us working overseas often say this or our colleagues do--one is often accused of being prejudiced.

Well, if these findings are correct, that malnutrition results in a physical retardation which is irreversible and may result in a mental retardation which is irreversible as well, just think of the implications. This means when we are up in the highlands in Bolivia or Peru or in northeast Brazil or northeast Thailand or central Java, and we say, "These people look dull. They seem to just plod along." And when we try to work with them, it is as aggravating as it can be. The fact may be that they are weaker, that they do not have the capacity other people have. Just think of the implications for development in those countries. Just think of the implications for manpower requirements, for human resource requirements in these countries as a necessary requisite to development.

Before change occurs you have to have a number of sequences, and if I may risk the danger of oversimplification, these sequences could be described as: first, an increased awareness of a problem, that is to say, information is uncovered and and it is disseminated. This in itself does not result in anything except that more people know about the problem. The second phase that one must enter into is an increased expression of concern. Somebody has to care about it and express that care. And then the third phase would be action of some kind to respond to the problem.

At our present stage, in 1967, we are beginning to get increased awareness. It is no accident that you now find in the literature, in the professional journals in a variety of fields, and professional conferences, an increase in awareness.

But there is a gap between awareness and increased concern so that perhaps it really has not sunk in. We only pay lip service to the real needs of people in the less-developed countries.

If we look around the world we find in almost every advanced civilization compulsory, free elementary education. This is no accident. There are several reasons for this. First, nations have long ago recognized that you need an educated population before you can develop. If you are talking about political development, military development, economic development, social development, you need some degree of education. You need statemen, you need trained artisans, you need semiskilled people, you need people who know how to read the label on a bottle or who can follow instructions.

Second, it has been recognized that the need for educated people is not something that can be left to the people themselves. It has been recognized that it is a function of the government to provide at least a certain elementary level of education. This is best and most efficiently done by governments, and it is accepted as a governmental role.

There is a third reason. There is pressure from below for education.

It is ironical that you do not have the same type of recognition with respect to the need for a healthy population as a requisite for development. It is also not recognized that governments have a role in this, that there is a function of government in terms of establishing policies and taking action.

There is also a lack of expression of concern on the part of the people themselves. There is an apathy when you get to the nth generation of people who have lived with malnutrition. This is not a dramatic phenomenon, such as an epidemic. Malnutrition is a creeping kind of thing. It has been likened to an iceberg in many cases, where only a little bit is visible and most of it is under the surface. You do not see it. It is often camouflaged in the statistics of morbidity and mortality.

It is ironic that there has been some recognition of this in the military. You have in the military a recognition that you do need a healthy and well-nourished army if you want to have an effective fighting force. We have in the United States a group that was formerly called the International Committee of Nutrition for National Defense, financed initially by our Department of Defense. It does nutrition surveys of foreign armies, allies of ours, with a view toward coming up with an action program, how you can reduce malnutrition in the army, decrease absenteeism and morbidity, and increase productivity of the fighting man. The policymakers in the military have come to the understanding that this is good economics. Now, for example, if you undertake a program of rice enrichment and this costs a certain amount of money that you did not put into your budget before, this may pay for itself many, many, many times over in the amount of man-days of performance by the military that would otherwise be lost.

We have a number of other examples like this that occurred in individual companies. We have factories or we have rubber plantations in Malaya where employers have instituted a free lunch program at noontime, for example. They have discovered that the cost of instituting a lunch program is more than paid for by the decrease in lost work time and the increase in output of the worker. Yet in terms of national policy in the developing world, this recognition of the economics of malnutrition has not yet really taken hold.

Now, if there is interest later in the question period, we might describe some of our reactions to this kind of thing--what we are trying to do to aid increased data awareness and what we are doing already in terms of planting seeds for development.

But now, let me say that we have immediately identified that one of our greatest needs is for research in the economics of malnutrition. If we are going to serve as policymakers it has to be on hard terms because when we undertake a program that costs money we have to find a way to demonstrate that if our hypotheses are correct the expenditure of this money becomes an investment which pays for itself in increased productivity of the labor force and of the potential labor force.

I will stop there for a moment and try to keep within my time. Thank you.

MR. GREENBERG: Thanks, Mr Forman, thanks particularly for bringing in this notion of cost benefit analysis. It keeps cropping up over and over again in my line of work and I think it is a very, very useful tool.

Our next speaker is Mr. A.J. Coutu who is Director of the North Carolina State University Mission to Peru and also Professor, Department of Economics, at North Carolina State University.

Mr. Coutu is also a member of a World Food Study Panel, Office of Science and Technology of the White House, consultant for the Ford Foundation on agricultural development issues in Peru, a member of the Executive Committee of the Association of U.S. University International Agricultural Development Programs, and several others.

A.J. COUTU: Thank you very much.

I would like to spend a few minutes on another kind of issue with regard to the productivity question. This is the one that I like to call the rural social welfare question that gets involved with the whole question of nutrition. If you get up in the Alto Plano of Peru, Bolivia, and parts of Brazil, certainly there is retardation and malnutrition and there is low productivity and all of these generate very serious political as well as social problems and substantial economic ones. Yet on this question of productivity, are you really going to do much about the rural social welfare question if it is largely within agriculture? If you are going to get carried away by the fact that what we ought to do is restructure society, that this will enhance the productivity of that society, or that we are going to deal with the question that exists in the Alto Plano in real low-level nutrition and education by largely an agrarian solution, then the productivity question is tied up with making better farmers.

I would like to at least throw out the supposition or the issue in this forum that if we take a one-hectare farmer or a two-hectare farmer and really try to relate man's ability in the agricultural sphere to his problems, we are just kidding ourselves. We really do not know what to do.

Unfortunately, I think land reform notions in many parts of the world perhaps have stumbled because of this. It is a good stumble, in my opinion. When we say that we are going to solve a nutritional or an educational problem by taking and redistributing land into one-, two-, or three-hectare plots, we are often really doing this on purely social grounds and purely political grounds so that we can buy some political stability. We may also be able to buy some improved nutrition, but at a very high cost. This is the conflict that I wanted to get on the table with regard to productivity.

I think we have to separate, very clearly, the social welfare question and the nutritional question of the Alto Plano people unless we are willing to say that a part of the solution is that of a holding action for people in these areas until we can create other opportunities for them.

Now this is a very unpopular thing to do, if you ever have to discuss these things with a Minister of Agriculture in Latin America. Yet the reality of the development problem, if we are going to use the science of agriculture, insists that we make a division, and a very sharp one, in what we are talking about.

The interesting question, in terms of productivity and income, is whether we are really going to employ many of these people that are in the Alto Plano in the production of food for themselves, which is sort of a stopgap, or whether we are going to turn to the other side and develop economic entities using man's modern abilities to really push in these countries, to bring forth food at a price which will benefit the urban areas as well as the rural. It seems to me that it is this problem that has not been sorted out very well. I simply want to bring this to you and suggest that, as we look at modern agriculture and its application into the areas of the world like the Alto Plano of Peru, it is largely a nonagrarian solution that we ought to be seeking.

We might have subsistence-level farms structured purposely as a holding area, but by and large these would not bring forth, very efficiently, quantities of food in abundance that will really do much for those people and for the thousands or millions of people who are migrating into urban areas.

If we are to capture the maximum, if we are to get the greatest productivity, we must not, in my opinion, let political and social questions overrule the economic forces that modern agriculture can bring forth if given a political setting that will allow it to do so.

Thank you.

MR. GREENBERG: I think that is an important and very interesting problem that Mr. Cou[illegible]u has presented. I am sure all of you are aware of the very enormous gain in agricultural productivity we have had in the United States since World War II, but you know it has not been all technology, it has not been all improved insecticide and improved fertilizer. A large part of the gain has been because small farm owners, owners of unproductive farms have abandoned the farms. Those that are left have higher productivity and they raise the level of productivity of agriculture. In many cases, unpaid family workers who used to work on the farm have migrated to the city, and the farmer is producing just as much, or more, than he did when the unpaid family workers were there. So people have been leaving these small, unproductive-type farms. That is one of the reasons for the very large increase of productivity in farming in the United States.

Well, after lunch yesterday someone asked me if I thought the talk was optimistic or pessimistic, and I said I found it more like hopeless. I do not quite get that feeling today. We have had some problems presented to us but also I think the beginning of some solutions. The speakers have been very good. They have taken less time than they were supposed to, so we now have a half hour for discussion.

EVERETT ROGERS, Michigan State University: I think all of you more or less mean to subscribe to the notion that if you improve the nutritional quality of people, productivity may rise. Do we have any research data on people in these countries that show that when you improve the "belly" factors the productivity increases?

MR. MAY: I think Mr. Forman gave you at least a partial answer in the time allotted when he reminded you of the efforts that had been made, and are still being made, by the planters of cash crops to feed their labor force. I have lived in Malaya for some time and in Vietnam for a long time and I have no doubt that the noonday meal distribution is an important factor in increasing the productivity of the worker. The Food for Work program is a proof that there is something to be gained by paying the worker in terms of an adequate diet, at least in lieu of wages. I would like some time during this discussion to have someone discuss the relation between income and nutrition. I think this is quite important and I think there is a lot of misconception about that. Mr. Forman, what would you have to add to this?

MR. FORMAN: I think if we had to answer that very, very frankly rather than defensively or anything else, we would have to say that we have a lot of smatterings of evidence. I say that because we are currently in the process of trying to see what the evidence is and what evidence is available. What we have are case studies here and there, such as the one I just described in Malaya. A rubber planter notices how much a man can work in a given day and then institutes a break for feeding during the day and we see that the production of each man for the same number of hours goes up.

We have a number of similar examples here and there in factory work. We know biologically that the body needs a certain amount of food in order to produce energy. We have a similar type of evidence but it is not even documented in the case of school lunch. Again, we just have observations, controlled and sometimes not too controlled, that when children come to school on an empty stomach they are not very productive in their thought processes, they are lethargic until they have eaten. By the way, when we started our programs overseas we started thinking in terms of school lunch, because that is what we have in the United States. Now, most of our programs are school breakfasts because these kids were not doing much until lunchtime. Anyway, we have people writing up the results of their observation, which is not controlled research, and it indicates that there has been a change. And then we have the evidence I described in the military, and things of this nature.

At the present time we are giving high priority to research programs of this type because we lack good hard evidence to ask somebody to take action or to put up money or to change a policy. We are planning to sponsor research of several kinds. One kind would be controlled, unassailable types of objective studies, and the other, the cost-benefit ratio type of thing because, unless we can do that we are appealing on humanitarian terms.

We know that you can show a film of skinny kids dying, the mother weeping--the skin-and-bones type of thing--and you can raise money if you pass the hat around right away. But this wears off and there is only a certain amount of support that you can get if you are asking for it only on humanitarian terms. So we are trying to find another way that is hard and realistic, either in economic terms, if you can prove it, or by another element I have not gone into, political terms--by proving to a policymaker that there is a political benefit in undertaking this program.

So I hope that answers your question. The evidence that we have today is superficial; it is haphazard, we have little bits here and there. It is enough to tell us it is probably so, but we need something more conclusive and we will have to get it.

QUESTION FROM THE FLOOR: I would like Mr. Coutu to describe what North Carolina University is doing in Peru.

MR. COUTU: We have been in Peru for about 10 years, primarily concerned with the question of training people and bringing forth research, and, more recently, trying to mold these into operational programs with regard to food. We are not concerned about cotton and some other fibers. For a long time we have been primarily concerned with a university, the National Agrarian University, which we think is one of the more promising universities in Latin America.

I was interested in the discussion on training. The impression I got was that we ought to be doing much more of a vocational-type training. I think there is a lot to be said for this, and yet if we go at it from the point of view of self-help, I would argue that the approach we have taken of really trying to train people in disciplines, in science-oriented disciplines to enhance their real understanding of the contribution that science makes to agriculture, is more useful than a strong vocationally-oriented program.

In research we have some 30 people dealing with everything in breeding, fertility, engineering, the whole question of the substitution of manpower, of capital for manpower, and economics and sociology. These are the areas that we have been concentrating on.

We have one other program. We have been working recently on commodity-oriented programs, and it has involved having a staff of three or four North Carolinians working with five or six Peruvians. We have a backstopping staff of people on our own campus that go back and forth three or four times a year, people who serve as short-term campus coordinators and are either geneticists, statisticians, or economists. They really backstop, with great disciplinary depth, efforts to make these programs more operational, moving into extension as well as actually trying to lead or help co-lead national programs oriented to particular food deficit conditions.

This is a very brief picture.

BERNIE MERSON, Agency for International Development: I would first like to hear your reaction to the interrelationship of wages, particularly minimum wages in the city, and what was alluded to this morning as effective demand and then please comment on this point you made of the need for getting nutrition for the kids as well as for the parents.

I have heard a point of view expressed that minimum wages represent a real drag on development and I am curious about your reaction as to whether there was a positive interrelationship between minimum wages, nutrition, and effective demand.

MR. COUTU: I have a couple of general observations. One that I would start out with is that it is intriguing to me why the _hacendado_ in Peru is now paying off the _obrero_ to leave his _hacienda_. I just returned from Peru and we were working in a valley in the northern part of Peru where a _hacendado_ had to pay 20 _soles_ a day to each _obrero_. This restrained him from considering the capitalization of this particular unit. He is now offering about 5,000 _soles_ to the _obrero_ to leave his unit--this is a cost of capitalization, of substituting machinery and other inputs for labor. As long as the obrero stays there he has to pay him 20 soles a day.

When you study the Alto Plano, I think the whole fear of land reform causes the disinvestment that is occurring there in agriculture, and I will contend it is tied up with the question of trying to legislate some minimum wage, some betterment of these people, through this technique. It is a short-run course of action and at the same time the hacendado's fear of having his assets taken away and redivided in uneconomic units that are possible causes of disinvestment. There is one study that we did cooperatively with people at the University of Delagruda in which we found, since 1964 when the land reform went in, a substantial reduction in the maintenance of assets in agriculture and an actual decline in the capital going into areas subject to land reform. Part of this is certainly due to the minimum wage, the other to land reform.

Somebody else may have a comment.

EUGENE C. MARTINSON, Agency for International Development: I would like to ask a related question. Did you suggest modernization displaces labor? If so, what happens to these people?

MR. COUTU: I think that if you look on the production side of agriculture, the farm side, that the real effect of the technology explosion has been the substitution of capital for labor and capital for land. This has not created, over the whole spectrum of things, less employment. On the contrary it has created more, and yet for the generation that is living there it is a real cost because these things are not going to develop that rapidly. But are you going to pursue the nonadoption of technological know-how in preference to social goals, namely, minimum diets and nutritional minimums? If so, then there is the big problem that faces countries like Peru. Can they afford transfer payments involved in redistribution of income from those who have higher incomes to those who do not?

I would contend that Peru is not in a position, as many other countries are, to institute a vast transfer payment program to solve this. Well then, what are our choices? I contend that where you have land, a very positive migration program may be part of the solution, and another may be the program of the Aheto in Mexico that has started a very conscious holding action until the society creates additional employment opportunities. I think the Mexican cases are intriguing. If you read Mr. Brothers' material he will tell you of a reconstruction of monuments in Mexico--just fantastic opportunities to employ many people, and it is bringing in vast employment potentials.

Maybe you do not share my views that agriculture is not to be the holding ground indefinitely for these people. The very essence of modernization would suggest that we must seek other ways to use this labor which are really as much a product of agriculture as are food and fibers, and it is not any different in a place like Peru. It is much harder, but it is not any different than it is in any other part of the world.

MR. MAY: I would like to ask a question, even two questions, related to what you said now and before. You seem to feel, if I understood correctly, that land reform, and by this I think you mean the redistribution of small parcels of land to the farmers, is not a solution to production. I think of course it is not, and that was not the reason why it was started, but is it not true that this was a first step toward the organization of cooperatives? In other words, the larger estates were, in fact, reorganized such as in the communist countries, in Tunisia and other countries of Africa. They were just left the way they were but split into individual parcels; the people were free to cooperate and were given an incentive for cooperation. Is it not true?

Now the second thing I would like to have your view on is this question of displacement of labor and utilization of labor at the farm level. Instead of having this mass cityward trend of labor, is the solution not just the reverse? Encourage basic industry, the processing of agricultural products, for example, to take place at the village level or at the small regional level. Is that not what we should seek very ardently?

MR. COUTU: On the latter point, I guess one looks at the question of skill and efficiency as a prime ingredient of bringing forth low-cost food. This is one point. The second point is that if we say that one of the goals of any emerging society really ought to be food production at low, stable prices, then this suggests a dilemma. This is the incentive argument for the farmer. Yet we are an urban society, not only in the United States but in many places, and no matter how difficult the *barriadas* (the slums) are, the opportunities there are ten to twelve times the number of *soles* per day than they would be in the Alto Plano of Peru.

But urban dwellers are also the ones seeking low food prices. Now there is a conflict there. There is a problem if we want to produce low-cost food and the evidence that I have suggests that a cottage-type food processing industry will not likely do that or if it does, it will not enhance the productivity of that labor.

Now, the other point would be that when you are faced with the goal of low food prices, have we in the Western World not essentially used the subsidization scheme for the other inputs that are essential to change that cost function. We provide low-cost credit, knowledge, and other forms of subsidization, not only on the demand side but on the supply side, to do something about maintaining low food costs.

Now, if in Latin America, we are proposing the establishment of research institutions, educational institutions, credit institutions, transportation institutions, and some price policy, these are really incentives, these are subsidies. I would prefer to vigorously push this route because where we have tried the cottage industry thing it has not been, at least to my limited observation, very feasible.

MR. MAY: I was not really thinking of cottage industry of the sort which you indicated but of a communal level of industry, processing crops from these farm cooperatives. This would eventually create an incentive for production and introduce the population into the money economy, but of course this is extremely debatable and it would vary in each country. In Africa it has been done extensively with some measure of success.

HAROLD DAVEY, Department of Labor: Are we using the term of productivity in different senses from time to time here? Mr. Greenberg, for example, is talking about productivity of American agriculture in terms of its being very high. As pointed out earlier, we may have high productivity in terms of production per person, but are we not more concerned with production per acre or hectare? Was not Mr. Coutu also speaking of production per person? You are talking of capitalization of farms, substitution of machinery for individuals and obviously this gives us a high productivity per hacienda operator but does the yield per acre go up intensively?

In Israel, I visited one of the cooperatives of the type that Mr. May is referring to. They have seven hectares in the particular one I visited, but it is farmed in a very intensive fashion and the people are growing not corn or something like that, but dairy products, poultry, fruit trees and so on--all of which require fairly high labor intensive inputs. Seven hectares were too much for one family to farm in this particular cooperative and they had to resort to hired labor about seven days every month to pick the fruit and milk the cows and what-have-you. Now, I do not know what the answer is in Peru, but if one can substitute an intensive type of agriculture for an extensive type, this sort of modernization will not necessarily release large amounts of labor to the urban areas. You indicated earlier, Mr. Coutu, that maybe this generation is paying since they are being released from the farm, but you feel that in the future they will be employed and the end result will create more production. Is there any evidence for that or is that just sort of an act of faith on your part?

MR. COUTU: Let me just make one comment before reacting to your question. I am not an hacendado supporter. I feel very firmly that these are very inefficient operations, by and large, but there is the concept of scale that the economist talks about. These haciendas are in areas where there are substantial diseconomies and substantial breaking up of these would not enhance the productivity of these people and this land.

Now, coming back to the scale problem, when you say that a man can take seven hectares and he can work it intensively the question is, is his productivity enhanced? Is there any growth of income to him?

Now, we find he could do his work, perhaps with three hectares, and not have to employ anybody. But then we say, "What does it take to get him where he can improve his income as a measure of his productivity?" Then there is a big gap. We go from this three-hectare farm to seven-hectare farm and we are talking about 30-and 40-and 50-hectare farms which allow us to substitute the kind of knowledge man has to make a modern agriculture come to life. What is it going to take him to mechanize and what is it going to take him to provide for the use of insecticides and fertilizer and other techniques in creating this kind of farm situation?

I would argue that there are many opportunities for more people in agriculture if we will increase the land base as we can in much of Latin America. In some parts of the world we cannot do that.

We have to worry about increasing the productivity per unit of land and the inputs associated with that. Yet a corollary is that if land is a restriction in terms of any economic production, and given a barrier of reasonably low food prices, if everybody who gets another buck has to spend it just to keep up with the price of food, we do not get far.

It seems to me that the big issue is the whole consolidation effect. If people move, we must be prepared to consolidate the ownership. That is what they are doing in Europe. Some of the most fantastic schemes I have ever heard are being put into effect to consolidate farms. This is what we are trying to do in some parts of the Alto Plano of Peru. These are not my own thoughts, but there is substantial evidence to support these actions.

MR. FORMAN: It is a little late in the day to start over by defining productivity one way and the other way but just as a final comment, one of the problems in analyzing the factors involved in the development picture is the fact that there is a tendency on the part of the people to look at a situation, analyze it, come up with a solution for it and, logically, it is a correct solution. Now, I am very pragmatic. I view myself in this business as an operator, as an administrator. We are interested in results and I think if we are interested in results, we have to do a couple of things right off the bat. One is that we have to separate short-term from long-term goals and we have to recognize that there is a need for certain types of short-term activity, at the same time that we are trying to plant seeds for long-term development.

For example, it is possible to analyze what is required in terms of making more efficient agriculture or industrial development, how much power is required, how much training, and everything else. It is quite another thing to implement these plans because we do not have control of the society in most cases. I think that if in certain societies we could just pull all the strings and do everything we want, we could get some of these things done. Another problem is political stability in a country. If you do not have continuity from administration to administration--if you have frustration being expressed openly on the part of the people, if you have agitation on the part of the masses--you just cannot go ahead and do this kind of thing.

There is one thing that we have learned in this whole business, that is, it is complex and there is no single solution to any of these problems. Also, we need to learn more about coordinating our programs.

We have to have the people who are dealing with the political situation, the people dealing with agriculture, the people dealing with education and everybody else coordinating and we do not have such consideration.

What we have now is some achievement in one area, some in another, and there are lags. Sometimes we achieve more rapidly in one area than we do in another, so we are not able to exploit the achievement that has been made.

I do not want to end this on a pessimistic note, but at the moment that is really what it looks like the future is going to hold. We are going to continue to make progress but it is going to be along a very shaky, zigzag path for some time to come.

MR. GREENBERG: I do not know whether that was a pessimistic windup. I think it was a realistic one. Thank you very much.

Friday, May 5, 1967

CASE HISTORY: HELMAND VALLEY PROJECT

GLENN E. HALM, U.S. Department of Labor: I am substituting for Mr. Carl C. Taylor, who has been called the Dean of the Rural Sociologists. Mr. Taylor could not be here this morning and my main qualification for chairing this session is my availability, a characteristic which my boss tells me should not be underestimated.

Our topic this morning is going to be a case history of the Helmand Valley Project, which is located in southwest Afghanistan.

It is going to be the third case history presentation during this symposium. Wednesday we heard about the Comilla project in East Pakistan, which has been described as a "textbook example" of rural development. It dealt with many of the manpower and human resource problems that this symposium is addressing itself to. Yesterday we heard about the Mass Fertilizer Demonstration Project in El Salvador which the speaker described as nearly perfect, at least from a technical point of view, and it illustrated the value of demonstrations in training and motivating human beings.

I doubt if the Helmand Valley Project has ever been described either as a textbook example or as a nearly perfect project. It was for this very reason that we selected it for our final case history and it may be more typical than the case histories we have heard earlier.

The Helmand Valley Project had an unusual beginning and was beset with a variety of difficulties, many of which were related to the human elements that this symposium is so interested in.

To tell us about the Helmand Valley Project we have three distinguished gentlemen. Leading the discussion is going to be Raymond Pagan who, since 1964, has been Officer in charge of Afghanistan affairs in the Agency for International Development. Mr. Pagan has spent a number of years in foreign service and AID and he was in Afghanistan from 1960 to 1962.

With him is O.L. Mimms, Chief of the Agricultural Branch, Near East and South Asia, in the Agency for International Development, and Odin S. Hanson, Assistant Chief of the Division of Foreign Activities, Bureau of Reclamation, Department of Interior. Both of these gentlemen have spent time in Afghanistan in the Helmand Valley.

RAYMOND PAGAN: Thank you. I am only going to give a general outline of the Helmand Valley Project and then call on my two experts.

I brought along this map designed by one of our people in Afghanistan. It makes you aware of the kind of country we are dealing with. It is land-locked and borders on Pakistan, Russia, 50 miles of China, and Iran. It is in the Himalayas and you can see the white-topped mountains. They rise, at the highest level, to 25,000 feet. In the Kabul area they rise 10,000 to 12,000 feet. The rivers are fast and they run furiously downhill. There is lots of water. It just is not where you want it when you want it. I would like to talk briefly about the Helmand Valley. Some people have said that the Helmand Valley itself and its watersheds comprise about 50 percent of the country. If you moved your finger on this map from Kabul right over to the Iranian border, it would comprise the watershed area of the Helmand Valley.

The valley has an interesting history. It has been under cultivation for at least 2000 years and in this time has been the highway of conquest. As a matter of fact, there is a new book out called Afghanistan, Highway of Conquest which tells of these various invaders going through, leaving the marks of their civilization on the country, but at the same time destroying a great many of the things that were in the country, such as the cities, the irrigation systems, and so forth.

The northern part of the country is rather a large plain coming off the Oxus River, and this has been the most fertile part of the country. So when the Afghans began thinking of development, they looked southward to an area, which at that time was almost desert, with cultivation along the river bottom and near the river but not very much further out and not well organized and not much of it. At one time, it is claimed, over a million people lived in a prosperous fashion in the Helmand Valley.

During the 1930's, the Afghans first decided to do something about developing the valley. The advent of World War II interrupted their plans and they were not resumed until 1946. By then they had accumulated some monies of their own from the two wars and they decided to do this on their own. It is not, as was said, a textbook project. It is a project that developed over the years.

They had developmental as well as social and political aspirations, which complicates development. They wanted to settle nomadic tribesmen. They wanted to open up a new section of the country to agricultural production. There was a deficit in wheat and badly needed wheat. They wanted to save their sparse foreign exchange. They had all of these different aspirations and their hopes all centered in this area.

They wanted to do these things very quickly and they wanted to see results. They were not aware of the problems that they were getting into when they started it. They did not have the administrative apparatus; they did not have the trained people. In fact, I would say that probably by the beginning they had more money than they had of anything, although no one would ever admit that they had enough money.

They started by making a contract with Morrison-Knutsen, an American firm. This firm was supposed to plan, design, and construct, which is a major operation for any one firm to do. Although some of the things that they were expected to do were well laid out for them ahead of time, there was not an overall development plan. There was not a feeling of priority; there was not a feeling that they should concentrate in this area or concentrate on that type of problem or facility. All at once, they started to build dams, canals, bridges, highways, airports, and when they got finished there had been invested, by the United States and Afghanistan, about $115 million in this area. (United States' assistance had begun in 1952.)

In the process they built two large dams which became the focal point from which the water was to be distributed. The land lies in such a way as to permit gravity flow. You do not need to have any pumping system at all.

My two colleagues will tell you more about this point, but certainly many of us feel that the Helmand Valley does not suffer from lack of water but perhaps from too much water.

The road system was put in, schools were put in, and also clinics were put in. Nomads were moved onto the land. Settlers were moved in from other parts of the country. Land that had been out of production did go under production. Major canals and major laterals were put in.

Unhappily, the drainage system did not go in with the irrigation system, and immediately resulted in salinity and the problems that go with salinity. With this problem came a lot of political unhappiness that comes with seeing land that one time was productive becoming saline.

The cultivation there was largely in cereals, fruits, and cotton. These were the crops. They found a ready market in Pakistan and India for their fruits and their vegetables. As a matter of fact, as of the last available statistics, Afghanistan earned about $25 million for fruits and nuts, a great part of it coming in from the Helmand Valley and adjacent areas. This is the largest single export that they have, even larger than the famous Karakul on which they earned about $15 million last year. Karakul is also known as persian lamb.

The Afghans financed this development in three ways. One, they had this money of their own that they earned and accumulated; second, they borrowed from their own treasury; and third, they came to the Export-Import Bank and the Export-Import Bank made them a series of two loans, one for $18 million and another one for $21,500,000. They also came to AID, and we brought in a technical assistance team. Since 1952 we have spent about $15 million in the various fields.

In defining some of the objectives of the project as we saw it when we went into it, you get some idea of how limited it was. It was not really an overall project.

I would just like to quickly read you what were, at that time, part of the objectives: To bring adequate irrigation to agricultural lands, to provide suitable communities for permanent stabilization and resettlement of nomads, to save foreign exchange by producing agricultural products now imported, to provide power for overall development in the area, to encourage development of marketing and processing facilities in small industries, to improve transportation and communications, to increase foreign exchange earnings and sale of surplus products. These were the worthwhile objectives that they felt important. However, there was not any sense of which one was the most important, how to do it or in what kind of time phase it should be done.

The Afghan government created for this operation the Helmand Valley Authority. The Helmand Valley Authority was patterned after our TVA and remained pretty much like our TVA. To this present day it has a semiautonomous authority; it is a governmental agency, but it is dependent on Kabul for its budget. It does not have cabinet status, but it does enjoy representation in the cabinet. Even within the administrative governmental setup they had some conflict of powers and problems on the part of the man who was the head of the organization.

The Helmand Valley concentrated largely on the development of irrigation and agriculture and this was reflected by the make-up of the organization. Its people were responsible for the operation and maintenance of the irrigation system and they had a construction unit which was responsible for building and land leveling. They had engineering staffs. They had all of the smaller elements that you find in a government. They had a small public health unit, they had an education section, they had a public works section. They had a power section and actually managed to construct one small power plant in Kahriz and put some diesel generators in Kabul. For years they have been dreaming about building a large power plant at one of the dams they had completed.

They made some small stand on private industry. Most of this however, has been governmental in its conception and financing. This has not led to a great deal of industry, but there is some beginning and with power, regular power, there is some hope that something will come of it.

The United States is involved in a number of different aspects of valley development. We have some very excellent help from the Bureau of Reclamation which is advising land and irrigation development.

We also have an agricultural team. The sum and substance of the Helmand Valley project is to produce food and they are working with us toward the goal of having the land ready, having it classified, having it distributed, having people working on it, having the necessary seeds and fertilizers and actually turning out the agricultural products needed to feed the people and to export.

We have had an education project there in conjunction with the Afghan Government. Schools are available in most of the cities. Of course, they still need teachers. The level of instruction is still not as high as we would like it to be, but they have made an amazing amount of progress in this field.

There are also public health facilities (small clinics) in a large number of the villages. These are not, of course, manned by doctors, but they are able to provide some sort of assistance to the community. There has been rural development of all sorts and kinds led by the Helmand Valley Authority.

Lacking in this whole complex has been any kind of comprehensive planning. But just recently we asked a private consulting firm to come in with a team of five people and one of their jobs was to come up with an overall development plan of the Helmand Valley.

Twenty years after development began in the valley we are now just getting around to having an overall development plan! This plan is going to be incorporated into the third five-year plan and it takes into consideration the manpower needs and the manpower availabilities. It also attempts to designate those things that have to be done in order to make this project successful.

I think you can tell already some of the problems we have, but let me quickly sketch them. We have not had overall planning; we have not had a feeling of priorities in the things we should concentrate on; there has been too heavy an emphasis on infrastructure. Much of this was needed but the question is, when was it needed and at what stage?

There also has been a lack of integrated irrigation systems. In the past, drainage projects did not go in as fast as they should have. They built the canals and did not take care of the laterals and did not put in the drainage facilities that were needed.

There were economic, political, and social goals which sometimes conflicted with each other and often provided problems.

There was not enough managerial personnel. We, for a long time, have kept Americans in very important jobs there helping the Helmand Valley Authority. In many cases these people were not advisers. Many times they actually had to administer the operation and many times they needed more counterparts.

There was a lack of farmers; they soon found that they could not farm too successfully with nomadic peoples. They did not stay long enough, they did not have the knowledge of even rudimentary agriculture that was being practiced in the valley.

The Afghans have made amazing progress for the time they put in, when you consider a project of this type in the Columbia River Basin began 40 years ago. The Afghans have worked about half the time without trained manpower, without equipment, without material, without a plan, and it is amazing how much they have been able to accomplish in this time.

People have been very discouraged about this project. It has been described in discouraging terms. I do not believe that this is the case today. We have had three different units go out and make objective analyses of it. They reported, "What are you people worried about? This thing is moving."

We have, it is true, an investment of over $100 million in the project. We do not know what the cost benefit ratio is going to be when this is over, but part of this is infrastructure which would normally have been built anyway. The valley is beginning to become a factor in Afghanistan's economic life. It is producing more and more.

An estimate made as early as 1956 indicated that agriculture production during a five-year period had increased $10 million annually. When you consider the exports of Afghanistan running between $70 million and $80 million a year, this is not a small amount to talk about. We do not know how accurate this figure is, because we just do not have many reliable statistics available and this, finally, is one of the other major problems we have had--trying to develop statistics needed to make the proper evaluations. But I feel hopeful, a number of us feel hopeful, that the Helmand Valley can be made to pay off in the not too distant future.

MR. HALM: Thank you, Mr. Pagan. Mr. Hanson?

ODIN S. HANSON: The Bureau of Reclamation was called in about 1960 to assist the Helmand Valley Authority in the operation and maintenance of the project, which by that time had been basically completed. By basically I mean that the storage dams were in, the main canals had been built, one small power plant was installed, and the basic structures were there and had been for several years. In those four or five years the structures had already begun to deteriorate due to lack of proper operation and maintenance, so at the request of the Agency for International Development we sent over a team to work with the Helmand Valley Authority and trained them to properly operate and maintain an irrigation system of this type.

In 1964 the program was expanded slightly to include additional personnel to work with the Afghans in a planning program for further development of the major ditches which were already installed.

Much of the area was still being irrigated from the old "jewies," as they are called, the old hand-dug ditches that go back several hundred and, in some cases, thousands of years. It is a very inefficient system and so it was decided to start a program of planning to properly develop this area. Shortly after our team arrived over there we found that one of the big shortages in manpower requirements was in middle management or foreman-type.

Afghanistan does have a small cadre of well-educated, competent technicians, that is, engineers, economists, agriculturists, and so forth. As in most of these countries the cadre is too small, and the men are assigned to positions of responsibility long before they are properly seasoned with practical experience.

But they do have people who are competent to fill the key spots. They have the necessary education, and with the assistance of American personnel working with them to pass on the practical experience, and with the inclusion of many Afghans in the participant program of AID for study or practical training, the problems at the top level are gradually being solved. Of course, at the unskilled level you have more people than you need.

It is the middle group that is causing the big problem. The critical group is at the middle management-level, people like watermasters, ditch riders, equipment operators, and mechanics. We even had to train a cook.

Now, we have used on-the-job training for most of these people. In other words, we have key Americans working with the various sections of the Helmand Valley Authority--in their procurement operations, in their warehousing, their equipment maintenance, and their equipment operations. In most cases there will be one American working with a team of Afghans who will pass on his knowledge to them. There has been a big improvement over the years but there needs to be much more.

It is not a formal program. If the time and money and people were available to establish more formal programs of training in this "in-between" group, more headway could probably be made.

In this area there are two cases that I would like to mention--one because of its unusual nature, the other because it is typical of the work that is being done over there. The unusual one is the case of training two Afghan women as clerks or stenographers.

Afghanistan is historically one of the most orthodox of the Moslem countries, and outside of Kabul an Afghan woman working in an office is virtually unheard of.

While we were over there most of our office help was provided by the wives of American technicians who wanted to work and were assigned jobs as stenographers and secretaries in the office. Through their social contacts with these American wives who were working, two of the wives of the Afghan officials became interested in this type of work, and asked for some help in learning how to be secretaries. One of the American wives took a great interest in this problem and we got her a set of correspondence courses for secretaries--typing courses, courses in business-English--and sent them over to her. For several months quite an active program of training these two Afghan wives was going on. I cannot say that it was completely successful and that the Afghan wives later took over the American positions because, as so frequently happens, the educated Afghans--due to their small number--are too frequently moved. In any case, it does show an interesting sidelight to a technical program and illustrates the need for training in many related fields to run any program. We feel that it might be a start of something to motivate the interest of Afghan women to do office work.

The other program was more formalized and more typical of an irrigation project. One of the key factors in operating an irrigation project is the control of water, measuring the water flow in the ditches, setting the gauges and the gates to control the water, turning it into the farm and into the laterals. This is normally accomplished by using subprofessional-level people who patrol the ditches and set the gauges, make the readings, and so forth. These are called "ditch riders," and they usually work under the supervision of a foreman who carries the title of "watermaster."

When we first arrived in the valley we found that one of the difficulties in operating the project was the lack of control of the water. They were overwatering many areas causing salinity problems and drainage problems, and the farmers at the lower end of the ditches were not getting any water.

The technical problem of installing the necessary measuring devices, the control structures and so forth was just a standard problem, but we found that there were no Afghans who could do a satisfactory job as ditch rider. So we set up a training school for ditch riders and watermasters.

The school consisted of classroom work, homework, field work and was, I would say, a formal school. It lasted for one year, and, Afghans with maybe a fourth or fifth grade education, some of them with not that much, were trained to become ditch riders and control the water in the valley. We had to teach basic mathematics to many of the Afghans. We had to teach them how to add, subtract, multiply, and divide. We even had to establish a manual that went into such detail that it said on Monday you go up the canal so many miles, and you read this gauge, you read that gauge, and you read the next gauge, and you come back and report to your watermaster what you found. On Tuesday you go up the other side of the canal and do so and so.

So you can see in this middle-management group where the really critical void exists, not only in Afghanistan but in many of the developing countries, that programs of training, really basic training, must be instituted and the local people, the uneducated people, the unskilled laborer, must be provided to fill this void of subprofessional and skilled laborers.

We found in the Helmand Valley that middle-level workers are in critically short supply on irrigation projects as they are around the world.

MR. HALM: Thank you very much, Mr. Hanson, and now we will ask Mr. Mimms to tell us about the agricultural aspects of the Helmand Valley.

O.L. MIMMS: This Helmand Valley is a very interesting place. There just is not much rain out there. I saw a report a few months back which said it rained sixteen-hundredths of an inch in February. It rained eighteen-hundredths of an inch in January or in December, I forget which, and that is all the rain they have had in the past year or so. The Bureau of Reclamation people, the irrigationists, the water people, have a big job to do before there can be much of an increase in crop production in the Helmand Valley.

Mr. Pagan might have mentioned in connection with the early Morrison-Knutsen work that they did some things that should not have been done. They knew they should not have been done. They told the Afghans they should not do it, but as King Saud said, "We will have a railroad." They did it. And now some of the Bureau of Reclamation people, their economists and even some of the Afghans say that they should not be growing crops, but that the Helmand Valley should be turned into a livestock area. What is going to happen there I do not know. They are still scratching around to try to grow some wheat and they will grow a little bit of wheat. A survey of some farms in that area reported an average of three bushels per acre. Typical, perhaps, or maybe it is not. Overall, the irrigated wheat yields in Afghanistan are reported to be 10 to 12 bushels per acre. Well, you do not live very well on 10 to 12 bushels per acre.

The dry land wheat is, of course, even lower, but there is not any dry land wheat in the Helmand Valley region, as far as I know, and I did not find any areas that would grow much grass without water other than rainfall. But there is not any reason why the wheat yields should not be 30 bushels, 40 bushels, 50 bushels. Some day they will be, I hope. They certainly can be, but it seems in the valley, as well as in the rest of Afghanistan, that the farmer has not really been considered a part of the country. He is just supposed to produce food, period.

The potentials in the Helmand Valley are terrific if they can find an economic way to get fertilizer in there once the water is available. And those farmers are not so dumb. They may not be able to read or write, but they already know more than some of their government experts about growing wheat. They had a better stand of wheat in a part of the Helmand Valley early this year than the government experts had on their experiment stations, farmed side by side. I do not know which one will have the highest wheat yield per acre, but at least they had the wheat up and ready to grow.

A lot of good work has been done in Afghanistan, a part of it in the valley, in testing new wheat varieties. The better varieties, with halfway decent practices, would yield 50 to 60 bushels per acre--other varieties from three to 20 bushels per acre. Some of the Afghan wheats are outyielding the so-called miracle wheats that Rockefeller has developed. Now, this is true, but we do not know the real potentials of the local wheats. A wheat-breeding program of sorts is now going on in Afghanistan with outside advisory help, and potential depends on a lot of things. It depends on water and it depends on fertilizer and it depends a little bit on proper cultural planning, land preparation, and seeding procedures.

Their present farming methods produce "cloddy" fields. Clods vary from the size of my fist to that of my head. They now sow wheat broadcast, and they drag a log, or something, across it and the wheat is planted. Believe it or not, it grows. It is surprising. A lot of these new dwarf varieties never come up, but some of them are just accidentally planted at the right depth. But there is a solution to this problem.

One of Afghanistan's big problems, already mentioned several times, has been, and continues to be, lack of trained manpower.

I was told that about 20 years ago there was only one agricultural graduate in all of Afghanistan. I do not know whether this is true, but it is evident they did not have very many. They do not have many today. We have trained only about 100 agricultural participants in the United States for them. Also, some have been trained in Afghanistan under the University of Wyoming contract. I do not know how many, perhaps 50 or so over the years. Now some of these men go back to the government, some of them do not, but there are some very useful Afghan agriculturalists with a very wholesome point of view. They recognize that if you are going to increase good production, you are going to have to work with the farmers, but this is not always clearly recognized or realistically approached.

Two or three years ago in the Helmand Valley there were about 118 agricultural extension workers and that was just about half of the total in the country. Since that time the number in the valley has decreased quite a lot for various reasons that we would not have time to go into here, but I think the decrease was about 30 percent.

One of Afghanistan's big problems has been its agricultural policies. In the valley, as well as countrywide, there is a lack of incentives to the farmers. The government requires the farmer in the valley to plant 25 percent of his crop land in cotton, and he is in trouble if he does not. The extension workers' responsibility, and his first responsibility, is to see that they do grow cotton for export and spend their time on cotton.

Well, this is a long story but the price system has been in favor of the urban consumer--low bread prices, and if you have low bread prices, you have some difficulty getting high wheat prices. Well, enough said on the incentives or lack of incentives. This is being given some attention. It will be given more attention.

We will have an agricultural survey team with some people on it who will be looking at some of the policy questions, and the Afghans are really interested in this, I am sure.

The Afghan Government's outlook toward agriculture has been, and remains, extremely limited, but their sights are being raised. They have had two groups of their own people in Mexico seeing what farmers can do with improved practices, improved seeds, and seeing the farmers growing 100 bushels of wheat per acre in Mexico.

They also have had two groups go to West Pakistan where the poor, illiterate Pakistani is growing 50-60 bushels of wheat per acre and occasionally getting 100 bushels per acre--not typically--but getting it sometimes.

So I believe their sights will be raised and, when there is a national awakening of the country, things will begin to happen--as they are happening now. I have never heard anything good about the Helmand Valley. It was all problems. It was hopeless. One responsible individual said, "I would just like to find a hole big enough to drop it in and forget about it," but some good things are happening there. I felt pretty good when I left there last January. I could spend much time on the negative side but, fortunately, things are looking up and more people are becoming optimistic.

MR. HALM: Thank you very much, Mr. Mimms.

I am going to exercise my prerogative as chairman and ask the first question. I am curious to know a little more about the resettlement of the nomads, Mr. Pagan. If you can tell us about the preparations that were made and the reasons why it failed, as I understand it did fail, I think the audience might be quite interested.

MR. PAGAN: I do not know as much about it as I should because it was before my time, but it was the policy and desire of the Afghan Government to settle the nomads, as many as they could, in the valley. These people were settled in two large areas and they were given land and seeds. They had some houses there, and they had some equipment the government provided, and they were helped with their first crops. Unfortunately, these two areas really caused problems since neither was really productive because they did not have drainage and became saline. Production the first two years was not too bad, but after that it dropped very sharply. I do not believe they are doing very much in either one of these areas now, are they, in agricultural production?

MR. MIMMS: Not very much.

MR. PAGAN: Many of these people got discouraged and they left the neighborhood. Some of them are still there doing other things, or farming or working on farms elsewhere in the valley.

MR. HALM: Was there any preparation given the nomads before they settled on the land? Was there any training given to them or anything of that nature?

MR. PAGAN: This has been a sore point in the Helmand Valley The people being sent there were not selected by the Helmand Valley Authority, they were not asked for by the people of the Helmand Valley, they were being sent and hundreds of them sometimes just showed up there and they were not ready for them. This is only a small item of the story but one reason why it did not go so well. But I would like to add, this is in the future perhaps, that there is no reason why the nomads do not have a place in their home in the valley. The question is, when is the Helmand Valley going to be a place for the nomads?

The nomads have real problems. They move across the valley going to grazing areas, and they need feed. They need feed for their lambs, for their sheep and the Helmand Valley can grow it, but it is not growing it. The Helmand Valley is going to have to grow some feed in the rotation order to get good crop yields. This will have to come as the irrigation program goes along. The integration of the livestock economy into the valley economy does not mean all the livestock has to be grown or produced in the Helmand Valley. They may be fed there part of the year during the poor grazing seasons. There is some real potential there which will help the "coochies."

MR. HALM: "Coochy" is another name for Afghan nomads. Mr. Mugaas from the Department of Labor had a question.

MR. MUGAAS: I would be interested in knowing the distance across the country to get some idea of the size.

MR. PAGAN: I would say across the country might be 500 miles.

MR. HALM: Afghanistan has been described as being about the size of Texas. I believe Eugene Martinson from AID has a question.

MR. MARTINSON: This is a question of fact. Is there a real population pressure on the land?

MR. PAGAN: I really think every country has a population problem if it does not grow enough to feed itself, and Afghanistan is about 10 percent deficit in wheat, which is their main staple. We know there is a movement of rural populations into the cities, that city populations are rising and that health services are getting better so that there is an increase in the population. Agricultural production, however, has over the last three or four years been fairly static.

MR. RODDY, United States Public Health Service: How many nomads are there?

MR. MIMMS: There have been estimates of three to six million, but we think about two to three million. Many are part of tribes in Pakistan so some of them go back and forth across the border and it makes our statistics very unreliable.

MR. DAVEY: I understand that the Afghans use a sort of a military conscription to provide some of the manpower required for building their public works and roads and so on. This is one of the reasons why they conscript people in the armed forces. Is this a factor in the Helmand Valley for building some of this infrastructure that you referred to earlier?

MR. PAGAN: Every Afghan male must serve two years in the Army. They usually apply and are tested, and if they pass the medical inspection they go into the Army. If they do not pass the medical inspection they go into the Labor Corps. The Labor Corps has helped build most of the large highways and a great many of their bridges and a lot of their public works facilities.

MR. DAVEY: Is this regarded possibly as semiforced labor? I wonder about the ILO conventions on this--maybe Glenn knows.

MR. HALM: I think that Afghanistan does not subscribe to the ILO convention on forced labor. It is conscription--it is not voluntary--but it is considered part of the obligation, similar to the military obligation, of Afghan men to serve their country.

MR. DAVEY: But there is a real distinction in conscripting people for military service and conscripting them to perform labor.

MR. PAGAN: Could I point out one thing about road construction? Road construction serves also a military purpose. The country is trying to link up its communications. They do not have any railroads. Their highways are their main source of communications. They do have some airplanes, but they do not cover the mass of the country so they depend on their highways and surface travel to get around. It is a very important thing for the military to get the roads in some sort of condition so they can move themselves and their equipment across the country.

MR. DAVEY: I do not deny they have a military implication, but perhaps they are conscripting them because they do not have in the private economy all the things that are required to hire labor. I understand one of the reasons they are doing it is the lack of administrative machinery to employ people on a civilian basis. They are just doing this for a lack of any preparation on the civilian side. What are we doing to help them move to an area of manpower utilization that would be freer?

MR. PAGAN: Well, all the American roads were built by private contractors and they hired Afghan laborers right off the street and paid them rather good wages. The Russians also in their highway used a lot of Afghans just off the street, so to speak. There are sections of the country where only the military work and they build their own roads and they build their own bridges. We have not had the Labor Corps tied in with any construction contracts that we have had.

ANNA-STINA ERICKSON, Labor Department: Does the military establishment maintain some kind of training schools or on-the-job training for these laborers if any training is required?

MR. PAGAN: The military does have training programs. I am not familiar with road construction programs. I suspect they get most of their trainings on the job.

MRS. TAYLOR, National Farmers Union: I would like to suggest that maybe the use of the military for road construction has its historical connection with the Pioneer Corps of the British Army which did this sort of work. I would like to ask you, Mr. Hanson, is it not possible to automate in some way these irrigation water control gauges and do this mechanically or is this a two-fold thing, trying to raise these people socially?

MR. HANSON: It is possible to automate these gauges but even in this country, only the most sophisticated of irrigation districts have reached the automation stage. It requires rather sophisticated radio networks and electronic recorders. The most automated one that I know of is the Imperial Valley Irrigation District in southern California where they are now practically completely automated--even to the extent of having a computer in their main control office and systems of that kind which are much too sophisticated for a developing country. You would run into the problem of having to train the necessary electronic technicians, radio technicians and so forth. Automation of this type is only practical in the very highly-developed irrigation districts such as we have in this country.

MR. HALM: I think we have time for one more question. Yes?

MR. AYRES, AID: I want to ask about new developments in the salinity problem. Are the new projects having salinity problems also?

MR. HANSON: Well, there really are no new projects. The additional work that is being done there now is just to improve and properly develop the areas that have been part of the project from the start and they are making progress. We have helped the Afghans design and construct a number of drains.

In one of the big problem areas for salinity there have been some drains put in, but that is the area that we are trying to encourage to go more to pasture land. There is really no complete solution of the Helmand Valley salinity problem for general farming. We are encouraging them to put more emphasis on the other parts of the valley where the land is better and the salinity problems are fewer, and to install the necessary drains and water control facilities to control the salinity, and they are moving. They are slow, but they are making progress.

MR. HALM: Thank you, and I want to thank the panel for a very interesting discussion.

Friday, May 5, 1967
UNEMPLOYMENT, UNDEREMPLOYMENT, AND THE WAR ON HUNGER

FRANK A. POTTER: I think we can get started, ladies and gentlemen. My name is Frank Potter. I am director of the Farm Labor Service of the Department of Labor. Our daily business relates to unemployment, underemployment, and employment of farm labor. Nothing that we do, I guess, can be related directly to the problems that exist in the developing countries, but before turning it over to the experts, I would like to make a comment or two.

I personally feel that some of the farm labor figures that are handed to us from time to time are rather artificial. I know that in our recruiting efforts, we run into some very odd problems. It does not necessarily follow that there should be underemployment and unemployment among some of our foreign labor, but unfortunately it exists. It is sometimes due to the travel involved, sometimes to the poor terms and conditions offered to the workers, to lack of training, and, oddly enough, to a rather substantial number of individuals restricting themselves to working with certain crops. Some people who would cut lettuce would prefer not to work in a celery field, while somebody who would pick oranges would not be seen near a lemon grove. It is very odd, and I think it is very difficult on a statistical basis, to determine what really exists in underemployment and unemployment.

I want to just give you briefly a few figures that have recently come to light. This is from the Manpower Report of the President, which was presented to Congress in April.

In 1965 the average for unemployment in the country was 7.3 percent in agriculture, 4.2 percent in nonagricultural industries. In 1966, it was 6.5 percent in agriculture and 3.4 percent in nonagricultural industries.

Now, it generally follows that way but, as I say, I am not convinced that it is necessarily true. I hope that the experts may be able to prove me right or wrong.

The first speaker that we have today on this matter of employment and underemployment and the war on hunger is Mr. Marvin Miracle. To be brief, I see he has attended school around the country, finally getting his Ph.D. at Stanford. He is presently Associate Professor of Agricultural Economics at the University of Wisconsin. In looking at his biographical sketch, I notice he has written several papers and articles on maize in Africa. Maize, I have always understood, is Indian corn, but I am sure that his presentation will not be corny.

MR. MIRACLE: Thank you, Mr. Chairman. I am not going to talk about maize or corn today, but more about problems of effective planning for agricultural development.

In the less-developed countries, unemployment or underemployment resulting from differences in the rate and character of growth of the agricultural and nonagricultural sectors, reflected by an excessive rate of rural-urban migration, is a commonly discussed and complex problem. An excessive rate of rural-urban migration seems to develop mainly because of economic factors, particularly relatively low farm incomes and noneconomic attractions of urban living.

We know little yet about the relative importance of the economic and noneconomic factors as contributors to unemployment and underemployment of this type. I am speaking especially of African experience.

It may well be that in some countries either the prospects for industrial growth are so poor or the strength of the noneconomic attractiveness of the urban areas is so high, that there is no feasible combination of increments in urban job opportunities and farm incomes that will stem the rural-urban migration. However, even though improving farm incomes alone will not necessarily solve the problem of excessive rural-urban migration, it clearly will contribute to the solution of this problem.

I would like to focus on some characteristics of agriculture in the less-developed countries, which I think strongly suggest the amount and kind of manpower training needed is different than that which is now typically found.

Small-scale agriculture is often the sector of the underdeveloped economies that presents the most difficult development problem, and central to efficiently changing the productivity of this sector is understanding prevailing patterns of decisionmaking and the potential for changing them. Economic development needs to be directed in such a way that new inputs are provided, for example, fertilizers, improved seed, and pesticides. Moreover, situations must be created so that small farmers will decide to use them. New economic activities and techniques need to be tested and disseminated by means that will maximize the rate of their adoption, and rural decisionmakers need to be encouraged to constantly react to available resources, techniques, enterprises, and consumption possibilities in ways that are favorable to the needs of an expanding and developing economy.

If there are substantial differences in the patterns of decisionmaking among small-scale farmers, say because of differences in the resource situations or the institutional restrictions faced, we need concepts and tools that allow us to identify and analyze them.

Currently, national planners and students of economic development have a strong tendency to give little attention to decisionmaking among small-scale producers; they not infrequently recommend policy measures which transfer most of all decisionmaking about agricultural production from small farmers to others and they seem rarely to recognize differences in the character of decisionmaking situations among small-scale producers of a particular country or from country to country.

The purpose of this paper is (1) to argue that the failure to give attention to differences in decisionmaking among small-scale farmers of underdeveloped countries can be traced to the vagueness of the popular system of classifying them, which I will talk more about in a minute; (2) to present data that suggest considerable differences in the decisionmaking situations of small-scale farmers in the less-developed countries; and (3) to argue that because of differences among farmers from area to area within individual underdeveloped countries, the size of the manpower training job required is even larger and more difficult than is commonly thought.

Underdeveloped economies are divided usually into a "modern" sector or sectors, often referred to as the foreign enclave or the "money economy" and a residual that is frequently almost entirely agricultural and usually called "subsistence agriculture," and we use that term in our discussions here as a reference point.

Sometimes distinctions are made between pure subsistence producers and producers who have both "subsistence" and "nonsubsistence" production. But such producers are nearly always identified as part of the "subsistence" sector.

This is largely because of the difficulty of establishing precise degrees of "subsistence" production, as typically defined, and apparently also because of the common, but I think demonstrably questionable for purposes of analysis, belief that there is little difference between producers with a high and low proportion of "subsistence" production. The important distinction is between some "subsistence" production and none.

The argument advanced herein is that the kinds and numbers of decisions that must be made are vastly different for producers at one end of the "subsistence" scale, as usually defined, than for those at the other, and can be much different for two producers with the same proportion of "subsistence" production.

Definition of "Subsistence" Farmers

The level of consumption, the proportion of production marketed, the motivations that prompt production of output that is marketed, and the rate of change of production techniques are all used in the literature in varying combinations to define "subsistence" farmers.

In discussions of problems of economic development it is usually one of the concepts related to the nature of production, frequently the proportion of production marketed, that is implied. The least ambiguous and, analytically, most useful concept is pure "subsistence," defined as complete self-sufficiency by the individual of the household. If pure subsistence prevails, production techniques could change some with the introduction of new crops or tools, for instance. Such innovations might result in output increments that are large relative to the existing level of production, but it is unlikely that there would be frequent or continuous changes in technology. It would be impossible to improve efficiency significantly through specialization, and it would be difficult for knowledge and material needed for increases in productivity to flow from one producing unit to another. Moreover, producing units would be cut off from external pressures and incentives, i.e., those outside the producing unit for increases in productivity.

Once farmers begin to sell or barter output, distinguishing between them becomes difficult conceptually and often impossible empirically. I think it is not surprising that we have no common scale for measuring degrees of subsistence and, that in practice, all farmers with any production that is not sold tend to be called "subsistence" farmers.

I would like to spend a little time on analytical problems that arise when we continue to talk about "subsistence" agriculture and "subsistence" farmers the way we have and then get on to what I think is another approach in the way of getting at this bulk of the farmers in the underdeveloped countries.

Analytical Problems with the Concept of "Subsistence" Farmers

It is questionable that any "subsistence" concept other than pure "subsistence" is meaningful enough to be useful in economic analysis. A farmer who sells some of his produce four years of a 10-year period and nothing the other years, an average of say 20 percent a year, is not a "subsistence" farmer to the same degree as one who sold 20 percent of this produce every year. Both are different, for purposes of analysis, from a farmer who sells 40 or 60 percent of his production each year.

Presumably a farmer who, over a 10-year period sells 70 percent of his output, on the average--but planned to sell only 40 percent and had unexpectedly good weather leading to a large surplus a few years--should be thought of as nearer to pure subsistence than a producer who planned to sell 80 percent of this output, but because of poor weather sold only 70 percent, on the average over the same period. However, as yet we have no way of relating degrees of "subsistence" to either the relative level of production marketed, the variablility of the percentage of production sold, or the proportion of production farmers plan to sell.

Even if an index of the degree of "subsistence" could be developed, it would not tell us much about decisionmaking. None of the variables involved in the concept of "subsistence" producers unambiguously distinguishes among farmers according to their decisionmaking behavior or the nature of the decisionmaking situations they face.

Attitudes Toward Risk

Two farmers who sell the same proportion of their production with the same regularity may respond quite differently to a new economic activity or a new technique because one of them may be closer to either his minimum physiologic level of living, i.e., the minimum level of consumption necessary to maintain life, or his minimum desired level of consumption, i.e., the minimum level of living he feels he is expected to attain. (Thus the minimum physiologic level of living is fixed for any given group in a given environment, while the desired minimum level of living is elastic and largely culturally determined.)

Suppose two farmers sell the same percentage of production with one of them twice as far above the minimum physiologic level of living as the other, but neither of them yet have attained the desired level. Given an opportunity for a new technique or new enterprise, the probability that the producer nearer the minimum physiologic level of living will accept it is lower because it takes a smaller loss to plunge him below his minimum physiologic level to maintain life. This has been talked about before, but I think it is a fairly important thing. There are big differences in what farmers have attained; they are not all right at the minimum physiologic level of living and I am arguing that these differences certainly can affect their receptiveness.

Kinds of Decisions to Be Made:

Reliance on percentage of production sold in classifying small-scale producers accounts only for selling behavior and two farmers with the same percentage of production sold can well face greatly different decisionmaking situations because of differences in their reliance on purchased inputs. For example, a farmer who has inherited as much land as he can manage, and has a relatively large and efficient family labor supply to use on it, might sell 60 percent of his production and buy no imputs while a neighbor with little family labor and no land of his own might also sell 60 percent of his production and purchase more than half of his imputs.

The nature of decisionmaking can vary greatly because of differences in the length of the lag between decisions and output; because of differences in factor proportions; and because of differences in access to resources. The major staple food crops grown in tropical countries have a growth period as short as two months for some varieties of maize (called corn in the United States) and the millet-sorghum group; as long as 18 months for some varieties of taro and plantains; even longer for some varieties of manioc (up to 24 months), breadfruit (often 60 months), and Sago palm (as long as 180 months). And even among those growing only annuals, farmers who can grow two or three crops a year on the same plot make decisions more frequently and can change their farming methods more rapidly than those with a single production cycle per year.

The combination of crops grown also affects the complexity of decisions to be made. Farmers with some enterprises which contribute substantially to production of others (e.g., livestock providing fertilizer for crops; crops grown partly or entirely as livestock feed; legumes grown because they help raise the nitrogen content of the soil; maize or sorghum that serves as support for climbing beans or for yams) have more complex production decisions than those without strong complimentaries between products, or between products and joint or by-products, to consider.

It is reported that in a sample of 50 small farms in two areas of northern Taiwan, 43 percent of the farmers raising hogs raised them mainly for the manure they produce, and 48 percent of those growing sweet potatoes grew them for animal feed. Yet in most of tropical Africa and parts of Latin America no feed is produced for livestock and animal manures available are not utilized.

Factor proportions sometimes are vastly different. Capital is short throughout small-scale agriculture in underdeveloped countries, but in some farming systems the limiting factor is land (e.g., irrigated rice) and in others it is labor (e.g., any of the various systems of shifting cultivation). The nature of property rights varies from systems where land is used but not owned by individuals and is allocated by some tribal authority to sharecropping and free hold.

Availability of labor and the conditions under which it is obtained are greatly different. What are now called "subsistence" farmers are not necessarily family farms. They may obtain labor outside the family--some small-scale farmers hire much of their labor. The size of the family labor force can vary considerably because of differences in labor obligations of any particular family member from one social system to another and because of variations in family size, which is especially important where polygamy is practiced and wives owe their husbands a certain amount of labor, as in much of tropical Africa. In studying 21 areas in Latin America, Africa, and Asia, we found that the proportion of labor hired varied from 0 to as much as 50 percent, in what was thought of as "subsistence" agriculture. We do not have very many studies of that sort but there is a great variation here.

Savings and capital accumulation are small by western standards, but so is the level of production. The percentage of production saved may be noteworthy, and the importance of both saving and hoarding may vary greatly from one rural economy to another without there being much visible evidence. Variations in the availability of capital goods suffice to suggest large differences in absolute amounts saved. So-called "subsistence" agriculture contains both farmers with no draft power and no tools other than simple knives and hoes, and those with animal-drawn steel plows and fairly elaborate irrigation systems.

Well, that is what I do not like about lumping together all small-scale farmers. I suspect that from the way the discussion has been going there are not many people here who do this but there are still lots of people who do when talking about undeveloped countries and their problems, which is why I think we need to look at this very closely.

Development of a Classification of Small-Scale Agriculture According to Decisionmaking Situations

It is not enough to say that there are difficulties in lumping all small-scale farmers together. I think we need to work towards some alternative classification. I particularly would like to see one which the people who are going to do the training could use to identify farmers that have substantial differences from other farmers so that a more selective type of development program can be provided.

Decisionmaking behavior of small-scale farmers has not been measured in most underdeveloped countries and is difficult to assess in detail. We do have some data, however, on differences in decisionmaking situations faced by small-scale farmers. It may be possible to distinguish decisionmaking situations which are relatively favorable to economic change from those which are unfavorable.

This section focuses on seven criteria for which reasonably reliable data now exist, or can be developed, in underdeveloped countries that seem to reflect meaningful differences in past decisionmaking experience and current decisionmaking situations (i.e., differences that are meaningful for policy measures designed to increase the output or productivity of small-scale farmers). These criteria are presented to demonstrate that for development planning there are several aspects of a small-scale farmer's behavior which are far more meaningful than the proportion of the output he sells. The relative significance of each of these criteria in identifying decisionmaking environments that are relatively favorable for the success of a given policy measure needs testing; there may be other criteria that should be added; and there may be additional divisions and subdivisions within these criteria which should be recognized.

I have worked with seven so far. I suspect that this is too many for an effective extension agent to deal with. These criteria are not mutually exclusive as I see it, because we look at these farmers as having many characteristics:

Some Criteria for Classification of Small-Scale Farmers in Developing Economies

1. Extremely Isolated

2. Chronically at a Low Level of Living
    - 2.1 Chronic malnutrition traceable to the level of production
    - 2.2 Fairly frequent occurrence of seasonal food shortage

3. Economically Stagnant
    - 3.1 Little increase in per capita production in the last 10 years
    - 3.2 Little increase in production sold per capita

4. Weakly Committed to Agriculture
    - 4.1 Off-farm activities are outside of agriculture and commerce
    - 4.2 Off-farm activities are in commerce or elsewhere in agriculture

5. Land Tenure Insecure
    - 5.1 Land tenure discourages land improvement
    - 5.2 Land tenure restricts enterprise combinations

6. Labor Dependent

7. Capital Dependent

The first of these is a farmer who is extremely isolated. The second is those who are chronically at a low level of living. The third category is those whose operation is economically stagnant. This, I think, probably should be broken down considerably. I have tentatively talked about areas in which there is little increase in per capita production in the last 10 years and those in which there is little increase in production sold per capita.

The fourth is weak commitment to agriculture and I guess a lot of these people will be called part-time farmers. My argument here is that those who have a weak commitment to agriculture because of a number of other alternatives, are under less pressure to consider the kinds of changes we are trying to extend to them than those which do not have so many alternatives. I break that down into situations where all nonfarm activities are outside of agriculture and commerce and those in which all nonfarm activities are in commerce or elsewhere in agriculture. I do this because I think there is quite a difference between a migrant laborer who works elsewhere in agriculture where he is likely to see different techniques and one who goes, say into a mine or something where he sees techniques which may have very little immediate value if or when he returns to his farm.

The last three sort of touch on the factor markets in one way or another. The fifth one is called Land Tenure Insecure. Here I distinguish between situations in which land tenure discourages land improvement and another subcategory where land tenure restricts enterprise combination. I suspect one could do some more with this because of the substantial differences between Latin American situations and the communal land system in Africa. Clearly, here is one thing that we need to include in any attempt to obtain more precise identification of farmers.

The sixth one is what I call Labor Dependent and I would argue here that once farmers begin to hire labor, their decisionmaking patterns change considerably. They become dependent on other parts of the economy for their inputs, or part of their inputs, and it seems there are great differences here even though there is very little obvious acceptance of new techniques. An example of this type is when farmers have been growing cash crops for several years and have not changed the productivity on such crops.

The last one is Capital Dependent and this is parallel to Labor Dependent. This is when farmers have a money lender problem or when they have begun to borrow outside their kinship system and part of their inputs again are coming from outside the traditional unit.

Implications for Research

It is here argued that development planning in the less-developed countries which is based on models that lump all small-scale agriculture together as one homogenously backward mass of producers is unnecessarily crude. Such analysis makes it easy for policymakers to assume that producers with the common characteristic of a relatively low level of productivity also vary little in their potential productivity. There are, in fact, important differences in the potential contribution to economic development of different groups of small-scale farmers within the same country that stem either from differences in their decisionmaking experience and ability or from differences in the decisionmaking environment in which they operate. But a large research effort will be required to take advantage of such differences.

There is much more data at this juncture on differences in decisionmaking experience and decisionmaking environments than on decisionmaking behavior--and possibly enough data exist that research on the first two can lead to considerably more effective policy for small-scale agriculture within the next three or four years.

Beyond testing criteria such as those discussed above for classifying decision-making experience and environment, we also need to know what combinations of decisionmaking situations are typically found and what the resulting differences in decisionmaking are. For example, it is reasonable to expect that farmers who are at a chronically low level of living will not be labor dependent, but it is more likely that a chronically low level of living and capital dependency could be found in combination. How common is either combination compared with other possible combinations? How different is the decisionmaking of farmers characterized by one combination of criteria compared with those characterized by another?

Well, one could go on, I think, with questions of this sort. The point is we need to do a lot more research on the nature of small-scale agriculture. My argument would be that you probably would get ahead faster if you had well-tailored programs which would include different kinds of manpower training, perhaps, which are responsive to the differences in countries than with a larger program which assumes that there is a uniformity of primitiveness throughout.

Thank you.

MR. POTTER: Thank you, Mr. Miracle.

The next speaker on the panel is Mr. A. J. Coutu, Director, North Carolina Agricultural Mission to Peru and also Professor, Department of Economics at North Carolina State University. He has had a varied educational background, a B.S. from the University of Connecticut, an M.S. as well from Harvard and Duke Universities and his Ph.D. from North Carolina State in 1955.

I gather from his biosketch that he has done a great deal of work in South America and Central America, as well as being consultant to the Ford Foundation.

A. J. COUTU: I would like to continue the issue that I raised yesterday, pursue a little bit more the question of unemployment, underemployment, and the war on hunger. The issue that keeps plaguing me and all the work that we do is the question of the conflict of role of social welfare and commercial agriculture.

Although there are some interesting conflicts that keep hitting me, I would like to put some of these on the table and see if we either can get further insights into these or to ask if the direction of the policies and movements that various agencies are taking appears to be consistent with the problem.

Well, let us look at a few of these. When we talked about unemployment and the subsistence farmer--I do not really know who he is either, but let us say he is the man that essentially is producing for himself--our evidence strongly suggests a zero marginal product of his labor which implies that we can take many people out of the agricultural sector and still not change the production of this individual or change the production of the region to any appreciable extent. Again, I am focusing on the sierra region of Bolivia, Peru, Ecuador, Brazil, and parts of Chile.

It is also interesting that whatever evidence we have suggests that as you begin to make some substitutions of capital for labor and improve the scale or the size of the farm, the productivity of the key input we are after, namely of that individual, goes up. Now what this means is that there are fewer numbers, but the productivity of the individual goes up substantially. As it goes up we get more output per person, we get a different income distribution in that rural sector and again we are faced with the fact that there is a substitution for the vast number of people employed in this sector. We ask what choices are available for the people who are thus relieved, and I think this is where the real crux of the issue must be faced. But there are some other choices before we get to that which intrigues me.

One is that if we say that our goals in the agricultural sector are political stability and social justice in the depressed area and at the same time say we are interested in low consumer food prices because we are going to have an increasing stream of migrants into the city (if the zero marginal product argument holds true, and I do not care if it is zero or near zero) then I would contend we have a strong desire for the emphasis to be on low food prices to the consumer.

This then immediately conflicts with the question of incentives to farmers, and what choices do we have? Now this seems to me to be the crux of the big development problem, not only in Peru but in many areas.

If the marginal product is near zero, the goal of low food prices for an emerging urban society will cause conflicts with the goal of political stability and social justice. As I suggested yesterday, there is a two-pronged effort in this direction. One is with the commercial agricultural sector of the society in which we get these kinds of substitutions. We get the substitution of capital for labor and the substitution of capital for land; we have a tremendously high complementarity between capital and management. This means a strong educational program for a limited number of such people, and it also means scale.

We know that if we can mobilize the continuum of things that it takes--the whole factor market, the incentives, the knowledge, the product market, the transportation system--we can get increased food, and we can also have low food costs.

To digress for a moment, the real essence of a high income elasticity for food suggests that if the goal of low food prices is met, you also begin generating an effective demand for many other things. This perhaps is the prime solution for those people who have the zero or near zero marginal product in a depressed area.

If your goal is social justice and political stability, what do you do about the low-income Indian farmer who is typical of many in the world? Let me just suggest a few of the things. Particularly with regard to training, it seems to me that there must be an emphasis on nonfarm vocational training. Maybe this is the prime thrust that we might make. At the same time, where there are rural areas of countries to which one might migrate, perhaps the vocational education would be in agriculture, but on balance the vocational training component should be primarily of a nonfarm type.

Quite another answer may well be the labor-creation types of opportunities. This is the argument for spontaneous colonization. This is the argument for manual road construction. This is the argument for local labor-intensive industries. Again, if we move from a farm where the marginal productivity is zero or near it and go into any sort of a local industry and can earn something more than this, we will get movement there, and yet we may not get much of a shift in the demand curve for the industrial products if the efficiency is as bad as it is in agriculture. Still, there may be opportunities here.

Another example of labor-creation is the Ejido experiment where a vast amount of recreational and historical site redevelopment was done in Mexico. I would like to repeat that in the city of Cuzco in Peru our estimates are that 65 percent of the income comes from tourist trade. If one looks around Peru and the other Andean regions, I think there are areas that are completely underdeveloped that will attract a tremendous number of people from the western world. It is these kinds of things that I think are the substitutes for making everyone a farmer.

We had some work done jointly with people in Chile, Bolivia, and in Colombia and our estimates indicate that if we begin looking for arable land and human capabilities, we might be able, in 25 years, to have two out of every 10 individuals in units that make some economic sense. Well, if you extend that number in the Andean region of Latin America, you get frightened; you might also ask, "What other choices do we have?"

I would argue that there are many choices, however the point I want to emphasize is that if one attempts to look at this almost wholly as an agricultural development problem, quite devoid of the many other elements of the nonfarm sector that must be pushed if you are to allow the modernization of agriculture to take place, there will be serious difficulties. The question is, what alternatives do we have for trying to provide a system of modern agriculture under conditions that are highly uneconomical? Thank you.

MR. POTTER: Thank you, Mr. Coutu. Our next panel member is Mr. Kriesberg who presently is Director of Program Planning and Evaluation in the International Agricultural Development Service, U. S. Department of Agriculture. He has had several overseas assignments with the United Nations and the Ford Foundation, and has served on short-term advisory assignments for Secretary Freeman. He has been in Brazil, Venezuela, El Salvador, and Ecuador. Mr. Kriesberg received his undergraduate degree in economics at Northwestern and his Ph.D. from Harvard. Mr. Kriesberg, the floor is yours.

MARTIN KRIESBERG: It seems to me that the issue that this panel is addressed to, unemployment and underemployment and the war on hunger, can be put about as follows: these people, those that are unemployed and underemployed on the land, are often themselves malnourished and though working the land, they produce virtually nothing for others who are not on the land. Hence, it seems to me, that we have a dual problem.

The first point is how does one raise production if the people are to continue to be engaged in farming and how to raise their income (whether or not the income is solely derived from farming activities) so that out of this increased production or increased income they would have the opportunity to eat better themselves. Since we understand that in the developing countries more than 50 percent of the people are subsistent farmers, a very real problem of the War on Hunger is to deal with hunger in the rural areas where presumably there ought to be the production to take care of the needs of those people themselves.

The second point, or the second way of attacking this problem, it seems to me, is that of raising the productivity of these people, if they are engaged in agriculture, so that they will not only increase their own food consumption, but they will produce for markets in urban areas, thereby making the traditional contribution of the rural worker to the country's economy, that is, helping to feed several people in addition to themselves.

Some of you, I suspect, are very much aware of the kind of numbers which are used within the Department of Agriculture to describe the change which has taken place in the United States within a relatively few years--the number of farmers who are still in farming today as against a few years back, and how many more people each farmer now produces for. The point is, as we look at the developing countries, over and over again we are struck with the fact that the people are almost wholly engaged in agriculture, and yet they are not producing adequately even for their own needs.

I jotted down a number of thoughts as to ways in which one might create, on the one hand, more production and higher income and, on the other hand, higher levels of productivity. For example, we are aware that one of the limiting factors to production and productivity is the land tenure arrangements and the limits of land itself in some countries. So one of the ways in which one can deal with the problem is simply to open up new land and improved land for cultivation, rather than continue to try to work the marginal land. This would mean that people could move out into areas which could be made more productive, relieving the underemployment in some regions where the land itself is not adequate to the needs. Moving to new lands is linked up, as we know, with a much more complicated issue than that of reclaiming lands. It involves getting title to lands, of cultivating lands held by large land owners whether they be cultivators themselves or whether others do it for them.

Another way of dealing with the problem of raising production, which has been talked about many times here and elsewhere, is that of simply more intensive farming on the lands that now are under cultivation to improve the acre yield. Here we are involved with a complex of things, such as more capital input on existing land and more labor employed to improve the land. I expect this is a topic which Mr. Ellis will discuss.

Then if we go on from these kinds of things to the issue of creating more income for these people, more employment opportunities leading to more income, we raise the issue of devising and developing rural industries. Processing industry can take place in the rural areas, using the raw materials from the land in small-scale processing, food processing, or crafts using the indigenous materials. These are ways of supplementing the income derived from the usual farming process.

One other point should be mentioned about more intensive farming and more intensive use of the land. I am backtracking now, but if we are concerned with improving the level of nutrition of the people who are still working on the land, there are a number of things which can be done to improve rural farming activity, such as the raising of hogs, of chickens, fish ponds, the whole range of activities which depart from the traditional, but which would be linked to raising the production of food for their own use.

Let me add to the discussion on processing and crafts industries in the rural areas. Included in this category, I suppose, would be the kind of tourist activities which have already been suggested, but there are a number of these things which have as their essential purpose not so much the matter of increasing production or productivity on the land, as devising and developing ways of supplementing income derived from farming. We in this country are beginning to think in terms of bringing industry out to the rural areas rather than simply bringing the rural workers into the places where the plants are being built.

Finally, there is the obvious way of dealing with the issue of unemployment and underemployment in the rural areas, and that is, to have them migrate to the urban areas. Now this is a simple kind of thing and it is, of course, taking place. It is taking place at a far greater rate than the cities are able to absorb these people productively. This raises, in turn, another problem which can be tackled in the rural areas, that is, the dilemma of the rural workers coming to urban centers without skills or without work. If one were to develop long-term and more meaningful training programs in the rural areas, one would automatically be taking some people from the farm production activity and be putting them into the school type of activity, or at least into the learning process, and would thereby reduce the rate of unemployment and underemployment on the land. At the same time, and perhaps more importantly, you prepare these people for the time when they migrate from the land to the urban areas and facilitate their movement into the activities and the production cycles in the urban areas.

Well, I have tossed out a number of thoughts as to the nature of the problem and of the ways in which we might make a start at dealing with them. Thank you.

MR. POTTER: Thank you, Mr. Kriesberg. The last gentleman on our panel is Frank R. Ellis, who is Director in Food for Freedom Service, Agency for International Development. He was in the Department of Agriculture for more than 24 years. The Food for Freedom Service, as I understand it, is carrying out the Agency's worldwide responsibilities under Public Law 480 and deals in negotiating concessional sales and use of donated food for economic development, child feeding, emergency relief, and food for work programs. Mr. Ellis is a graduate of Murray State University in Kentucky and did graduate work at the University of Kentucky.

FRANK R. ELLIS: Let me tell you where I begin in trying to use this $1,800,000,000 worth of food that we are making available under the Food for Peace program, the food aid part of the total program. As you know, it is funded as part of the farm subsidy program by the U. S. Department of Agriculture. The administration abroad is largely the responsibility of AID.

First, I start from the assumption that the farmer is a rational economic creature. I think there is complete, total, and convincing evidence of this. Second, that food is energy. This is particularly relevant to the donated food program because if you fail to look upon the food as energy and fail to try to utilize the food energy you have made available, you fail to attack the cause of the hunger and you are just "spinning your wheels." If you cannot get anything but another day's life and some night soil out of the donated food, it is just about as well not to give it. That is pretty cold-blooded, but that is the way we have to think. This idea is reflected by the unshackling of about two-thirds of the donated food made available through the volunteer agencies. Until 1964 they had been shackled by rules which implied that it is inherently wrong to ask the recipient of donated food to do anything in exchange for the food. I am a New Dealer, and this goes back to the New Deal philosophy that if somebody came and knocked on the door in depression days and asked for a handout, it was wrong to ask him to go chop some wood. I accept, but there is a fundamental difference between asking a man to chop some wood for the donor and to chop some wood for himself. We had to go to Congress to get the law changed in order to do that.

Now, our goal is that within two and a half years no unemployed or underemployed able-bodied adult will receive food for himself or his family unless that food energy is utilized in work that will attack the cause for the need for the food. Now we have had some examples of success in this area.

Jointly with the Korean Government, we trained 1,000 local foremen--this gets to your manpower question--in the simple techniques of (1) managing labor and (2) designing fence terraces. Many of you may have been to Korea, and all of you have seen pictures of its barren hills and mountains. Those mountains are being converted into farms--much too small, yes, but nevertheless the people are getting food.

Management is supplied by the Korean Government, donated food by our government, and labor by the Koreans. The latter receive food which provides the energy for the work of hand-terracing those mountains. They obtain title to about two acres of land. This represents one example.

There are all sorts of variations. The voluntary agencies are doing a terrific job in this short span of years by shifting from dole-feeding to small units organized for community work activity projects--land reclamation, well digging--the whole gamut.

The only limiting factor, or the major limiting factor, to making our goal of complete transition is the management requirement. Now, let me go back to something you were talking about, Mr. Kriesberg.

We are too afraid to face up to the fundamental fact that terms of trade are rigged against the farmers of the world. These are the hungry people of the world and also the source of the population problem. We have been so fouled up in this dichotomy of price supports that we have been unable and unwilling to face up to the fact that we did not increase yields in the United States until the government helped the farmer meet one of the two fundamental risks that a farmer anywhere in the world has to face. One is climate, the other is a market for his product. He has a high risk threshold because he is gambling with his very life and his food for the next year, when he decides to go to the money lenders to borrow the money to buy the fertilizer. He cannot afford to take that gamble unless he receives some assurance of a market.

There is not much the government can do, even in our country, about the weather risk, but we certainly can do something about market risks. We did it in the United States. When did corn yields start going up in the United States?

MR. POTTER: In '34.

MR. ELLIS: They did not increase a bushel from Civil War times until 1930, and similarly with wheat. Why will we not face up to it honestly and get right at the roots of the problem? This is one of the reasons I have some optimism about India. Because they did in '64 face up to it. They do have a price support program. Its credibility has not yet been tested because the cruel hoax of two years of drought coming right after that was done made it unnecessary for the price support mechanism to go into operation, but the farmers of India are all responding as rational creatures. There is a black market among subsistence-level farmers for fertilizer. They are paying black market prices for fertilizer and for new seed.

You go into an Indian village in Behar State, in the heart of the drought area--I was there a month ago--they have a little well and two or three acres of irrigated land, but the natives will point to the one little patch of new wheat. You see, they have enough seed to have one little patch of the new Mexican wheat. They were proud of it. This business that farmers are traditionalists and all the rest is "for the birds." They only act and respond. Of course, they have their taboos and their special peculiarities and I agree completely with the need to be discriminating, but what are they beholden to? What motivates them? Fundamentally they are motivated by the same things we are. Give them an opportunity by not rigging the terms against them. I will give you a specific example.

In South Vietnam the authorities wanted to lower the price of rice to consumers in Saigon to avoid possible unrest or civil disorder. This was done, but at the disadvantage of the farmers who were underpaid for their rice.

Remember, the first response to an improved income is more food. The next one is to start concerning yourself with a better life for your children than you had for yourself. That carries you right into the question of exercising a choice of conception.

Before various groups I have pleaded to my audiences not to talk about birth control. What we should talk about is conception control. When you have spent as much effort as we have spent in our work trying to reach the hunger problem, you cannot set the population problem off in another compartment.

We are trying to move food, the donated food, through child health centers to feed the children. We are trying to move it through the maternal health centers, because that is where the mother has some opportunity to get knowledge about techniques for exercising some choice about family size. We are using currencies generated by food to support population control programs.

Last year, 100,000 people in northeast Brazil became functional literates in an adult literacy program supported by AID money and supplemented by food given to the people to come to a lesson once a week. The food made the difference between the highly successful literacy program and just a routine one.

It has been a pleasure to talk to you. I hope I have not been too outspoken.

MR. POTTER: I would like to pose a question myself to start this question period and I do not know who can best answer it. I read recently that in the United States about 40 percent of our industries have moved to what are considered rural areas. In other words, taking the job to the labor supply. I believe in Puerto Rico, as a result of their Operation Bootstrap, that in addition to the normal incentives which were given to business to move down there, they were given additional incentives if they would establish their plants in small rural areas. I am just wondering if you gentlemen have discovered in your travels whether this sort of thing is being considered or whether it is being done in some of these other areas. Mr. Kriesberg, would you have any comment on that?

MR. KRIESBERG: Well, I am sure that this, as a matter of policy or principle, is one of the things which AID has been working on in a number of rural development programs. Not nearly enough is being done, however, in this direction. In part, perhaps, because you sometimes have in a mission those concerned with industrial development working in one office and those concerned with agriculture working in another office. One is concerned really with pouring on the fertilizer and the other one is concerned really with urban problems of industrialization, and there is a lack of relating the two to the overall problem of reducing unemployment and underemployment on the land.

MR. POTTER: Thank you, Mr. Kriesberg. Any questions?

MR. MARTINSON: I feel that one of the big problems is whether an efficient, modern, profitable, but labor-intensive agriculture is really technically feasible. I gather that Mr. Coutu very much doubts its feasibility on the basis of scale and other factors, but certainly in Japan and Taiwan they have been able to succeed. They succeeded in creating an efficient, high-yield agriculture with intensive techniques and it seems to me that we should not give up too easily on this problem. Perhaps more research, more thought would have a high-yield payoff in this direction.

MR. COUTU; I could not agree with you more. I think there may be some opportunities here. I know the effort in this country certainly has not been very productive where we have tried this. I also get carried away when I read about Japan and these two- or three-acre farms, and how they are being run by the grandfather and the grandmother and a bunch of kids and the wife and husband are off peddling a bike. Some of the figures on this are rather striking. However, there are relatively few crops that lend themselves to this highly-intensive labor input. Certainly there appears to be some evidence that it is true in rice and in some vegetable crops, but in very few others. Also, in Japan there is some deceptiveness about these small farms and who is doing the work on them. They are part-time farmers, or at least that is the impression I got.

MR. ELLIS: My feeling on this is that this is the way it is going to happen. Whether we think that is the wisest economic model is quite a separate question. It is going to happen with labor-intensive small farm agriculture. That is where most of the people are going to be working and that is where you have the greatest hope for increased production in the next 15 years. This idea that you rip all apart and combine a lot of small units and put in large tractor equipment, and so forth, is not the kind of practical realism to concern ourselves with. That is going to happen in some cases, but the real solution is going to be found in increased yields per acre of urgently needed and desired food and reduced yields per couple of unwanted pregnancies.

MR. HAROLD DAVEY, Labor Department: I have a question for Mr. Ellis and Mr. Kriesberg about rural public works programs. In the past a number of countries have been given food on a grant basis and we persuaded a fair number to use this food as either partial payment for wages for people employed or as a reward for attending a literacy course. Now, is there any research or any evidence that this may be economic, in the sense that the countries might be willing to use their own resources, because, obviously, the day of the grant food aid is coming to an end?

MR. KRIESBERG: I suspect it might be economic for them to do this if they are building up this infrastructure, if they are using the unemployed persons who were not making an economic contribution in the past. Would the country not recognize that it would be worth their while to have a rural public works program? That is the question.

MR. ELLIS: Well, let us clear up the terms of reference here a little bit. There are two parts to the food aid program. There is the transfer of food using the commercial mechanism to people who can afford to pay in countries which lack the foreign exchange with which to import. That is the concessional sales program. It is a commercial transaction except for the banking part. There is a loan or sale of the local currency, but the seller over here gets dollars and we accept rupees, or whatever you have there. Now the terms of that kind of program have been hardened deliberately and consciously because, as you know, we no longer have any surpluses of foods to work from. We are deliberately producing food to meet this need, but the other part of the program, the donation part, authorizes up to $600 million a year donation for Food for Work, for child feeding, for school feeding and so forth. By the way, the food aid bill went through 40 hours of executive branch testimony, hundreds of hours of public testimony, eight days of debate on the House and Senate floor, and there was not a critical question or adverse comment raised about that $600 million of donated food because Congress was convinced that it was being used for energy direction and also because of the deep humanitarianism of the American people.

But the fact is, governments are doing what you are talking about. A good example of that is Pakistan. The use of their own resources without any assistance from us is a fairly common occurrence in the emergency-type situations. There are over 200 million people working in India now on a monetized food relief program. The workers take the money that they earn to the fair price store and buy the food. This makes sense where the mechanism works for it. Morocco and Tunisia have large food support schemes. The food is in effect a means of stretching the public works dollar because it accounts for about 60 percent of the program's expenditures. So, increasingly, governments are either entirely on their own, or by increasing their input into food-aided operations, utilize unemployed and underemployed labor in off season periods and drought periods to build water retention dams, roads, and the whole gamut.

WILLIS SLOAN, Department of Labor: This is not a policy question. I would like to ask Mr. Ellis for his opinion on the effectiveness of the use of the cooperative mechanism both in the distribution of food and in the development of rural areas and things of that kind.

MR. ELLIS: Well, if you will accept a very broad definition of cooperative, and not the dogmatic, doctrinaire, "totally, vertically integrated-or-else-it's-no-good" definition of cooperative, I think they are one of the greatest instruments for change and progress, for aggregation of capital and talent and credit that we have. It was not until 1961, when former Senator Humphrey wrote it in the Foreign Aid Bill, that we had any mandate to use the cooperatives. It was about that time that people began to see the real virtue of the pioneering work that Father McCullough had done in Peru, and a lot of other dedicated people had done in this area. I do not think we really had begun to grasp the value of the cooperative mechanism, or whatever name you give it, in shifting from tribalism to modernism. As a legal form for aggregating, it is by far the best.

What we are resisting in most of the developing countries is a fear of capitalism as they understand it, and their understanding of it is capitalism at its worst. To them it is colonialism, and colonialist capitalism is one of the worst forms. The co-op mechanism is a very, very useful means of bridging that gap.

MR. POTTER: Mr. Merson?

BURNIE MERSON, AID: Mr. Ellis, you seem to be it. This is directed to you, too. You know that the AFL-CIO has come out, not against the use of Food for Work, but against total payment in wages in United States' food. Are we following that particular resolution, adhering to it, or are we ignoring it and what safeguards do we have? Now, my second question is more important than the first one because my first one is just an opinion of one organized group.

My second question is related to the ILO convention of forced labor. It is not unknown in some developing countries to have compulsory work brigades, the rounding up of idle people in the bazaars and sending them out to work camps. What if some of those countries are using surplus American commodities as part or full payment for work of this sort? So my second question is, do we have any policing or methods to avert that?

MR. ELLIS: Well, first, we are keenly aware of the words and the spirit of the resolution you refer to. Second, we are confident that we are complying with the spirit and intent of that resolution in terms of avoiding a peonage system.

We have antipeonage laws in the United States and you know the background of that kind of concern--the hacienda owner requiring the people to work and give him labor. The Orisa Canal, a 90-mile canal, in India was built during the famine of 1867 by the East India Company with nothing but food paid to starving people. They migrated in great hordes. All they had to do was give them enough food to keep them alive to dig the Orisa Canal. They had once owned land but sold it. So we will not touch anything that smacks of peonage but there is a difference between this (and it is the same difference I was trying to draw a while ago) and organizing people for work in their idle hours to do something for themselves, for their own needs. You first go to the village or town and get the people together and say, "What do you need the most?" So they say it is a school or a road they need most. It is something for themselves. You do not have peonage when people are building a school for their own children and the food is provided as that "extra" that makes it possible for them to give up the day's work at home, or a part of the day's work, and come in and donate their labor. We have stricken the phrase "food for wages" from our lexicon. We do not even think of the food for wage concept. We think of it as, "Here is some food that will generate some energy, now let's organize that energy to do something that you need done for yourself."

MR. POTTER: Gentlemen of the panel, I thank you very kindly. I learned a great deal from this discussion as I am sure everyone did.

Friday, May 5, 1967

HUMAN RESOURCES, FOOD PRODUCTION, AND THE PRIVATE SECTOR

JOHN E. DILLON: Good afternoon, ladies and gentlemen. My name is John Dillon. I am from the Office of Labor Affairs of the Agency for International Development.

I want to say at the outset that I am not an agricultural expert. I do have some experience in the manpower field, having been a part of the trade union movement for some 30 years on and off, and having served in four government agencies that dealt with manpower problems. But we do have four experts in the field which is the subject of our discussion this afternoon, Human Resources, Food Production, and the Private Sector.

I would first like to call upon Karl A. Lundberg from the American Institute of Free Labor Development, an organization that is active in the trade union education and social projects field in Latin America.

Mr. Lundberg, according to his bio-data, grew up in the western Dakotas. His early activity--stock farming; subsequent career--service in public administration. He has a lifelong interest in agriculture, cooperatives, and labor organization. He is author of numerous labor-oriented magazine articles in the socioeconomic field, and is the former chief and present consultant of the Agrarian Union Development Service of the American Institute for Free Labor Development.

Mr. Lundberg, the floor is yours.

KARL A. LUNDBERG: Ladies and gentlemen, the objective of the American Institute of Free Labor Development is to help build strong, healthy, politically conscious and democratic labor unions in Latin America. Approximately 60,000 union members selected by the unions themselves have had training courses, training seminars, usually running a week, sometimes two weeks, in their own countries. In addition, 480 during the five years of the Institute's existence, have been brought to this country for a thorough three months' study of labor unions, labor history, labor organization, labor economics, political considerations that concern labor movements generally, and so forth. They are being trained for leadership in their labor movements in Latin America.

More recently, in 1964, the organization to which I am attached moved into the field of Agrarian Union Development. There, too, our reason for being in the field is to help build unions. It therefore naturally follows that the campesino problems with which we must deal revolve around the twin subjects of the Symposium.

No significant increase in agricultural products is possible without the use of mechanized equipment; the use of mechanized equipment means surplus labor. Surplus labor has a need to defend its interests, to see that it does not simply become footloose, with no assistance, no plans whatsoever made for it.

With this knowledgeable gathering it is really not necessary, I think, to set the scene. However, let me mention that, for example, in Colombia, out of 27 tracts of 2,500 hectares or more, 22 of the 27 are owned by absentee owners, and managed by major-domos, who, on the whole, are not interested in production. They are not interested in modernizing their equipment. The owners themselves are not interested. Why? The owners do not live at the workplaces, they live in the cities. The major part of their income is derived from other sources. Ownership of large tracts of land is for them a status symbol, a hedge against inflation. But as far as agricultural production is concerned, they are pretty indifferent about that.

Not only is that the case, but also the credit facilities of the country are available, in the main, to these large operations, to these large farms, with complete neglect of the campesino himself, whose hunger for land is rooted centuries deep in exploitation, and who is alienated from the economy of his country.

I think in the relatively brief time that I have, I shall give just two examples that will indicate the role that agrarian labor organizations can perform in Latin America.

One is Chile. I was there at the time that President Frei introduced his Agrarian Bill, which has since become law. One of the things that I did there was to visit a fundo, as it is called in Chile, which had been expropriated by CORA, the Agrarian Reform Agency, and was in the process of development. Now, previously, before its expropriation, there were about 100 families on that fundo. They were all organized. There was a well organized and active sindicato.

What happened after this was taken over by CORA? The agrarian reform under which CORA operates provides that the cooperatives in the Agrarian Reform Projects are exempted from protection under the general cooperative laws of Chile. Instead, this is a special type of cooperative which is set up by administrative fiat and under administrative control entirely. So it can be set up or can be destroyed by CORA any time it wishes to do so.

In organizing these projects, the first thing done is to set up a precooperative committee. Now, it happened--and it does not seem likely that this was accidental--that none of the officers of the sindicato became officers or members of the precooperative committee. About 30 of the families were to receive land when the land of the fundo was to be divided. What happened to the other 70? When I talked with the Agrarian Reform officials, they said that certainly not more than 10 of the 70 would ever be reabsorbed on that fundo. Well, the other 60, where do they go? Who knows? Certainly some surplus labor is used in the improvement of the fundo itself to put it in condition for the parceling out to the families that are to be located on that fundo. And there is, of course, the general program of the government for the improvement and the conservation of natural resources.

But under the Agrarian Reform Act, the Agrarian Reform Projects on expropriated fundos have first call on the money; it is a priority affair. Therefore, it is likely that very little money is going to be available for providing for the reemployment of the surplus labor that results from each of these Agrarian Reform Projects.

Now, what happened to that sindicato? The sindicato was destroyed. Is this good or bad? Well, it depends on how you look at it. The farmers on this fundo who previously were members of the sindicato were now members of a cooperative which is under the thumb of the Agrarian Reform Agency. At any moment the Agrarian Reform Agency can say, "You do this," or "You do that," or "You do not do this" and "You do not do that." This does not mean that the Agrarian Reform officials are evil men at all. But the fact remains that they do come from a class of men who have gone to the universities; they do come from that class of people in Chile whose traditional culture has produced an attitude not only of distrust but more or less of contempt for the *campesino*, a belief that he is not capable of making his own decisions, of proceeding on a basis of self-help.

Perhaps some protection can be afforded the surplus workers by the organization of regional rural unions, so that the unit will cover a larger area and not just a single *sindicato* which can be destroyed in a single action such as this.

There is, of course, a great deal of activity in the way of education in the urban unions. But there is very little going on in the rural unions, although some of it is being done by semigovernmental agencies, for example, CONCORDE, through which funds are channeled to assist existing labor unions. They have provided some very valuable help in the form of legal services.

I should say one further word. I see the Father seated back there, and I should like to express my gratitude for what I found being done by the young Jesuit priests in Colombia. No more dedicated, more dynamic, or more energetic work was being done in the field of organizing cooperatives and in the field or organizing *sindicatos* than was being done by the young Jesuit priests in Colombia.

That is true to a great extent in Chile also, where a remarkable priest, named Padre Mejia, has set up a school. The school is not for the educators, but is a school for those with the type of education that the average *campesino* has, where he can study and learn about things that are directly related to the life that he leads and will in the future lead.

Now, to move over to northeast Brazil, where the American Institute for Free Labor Development has what we believe to be a very important program underway. We have set it up with very fine cooperation from AID. Without such cooperation, without the support of Lincoln Gordon, the then Ambassador, and without the very strong and fine support of Herb Baker, the Labor Attache, this could never have come to be. We now have three completed Campesino Service Centers in northeast Brazil.

I take particular pleasure in telling you about what happened in late March of this year. The AIFLD staff has been working with the rural federations since they went down in, I think, February 1964. As you know, I am sure, that area of the country was in great turmoil. There was a division in the labor movement itself.

In March 1967, a convention was held in the Campesino Service Center in Carpina, in which 119 rural union delegates gathered for a full week of discussion. These delegates came from 11 different states, from as far away as Rio, and a very large delegation from Pernambuco, which is the state in which the centers are located. I should say that the AIFLD field staff was very, very careful to stay out--this was a development of the leadership of these unions themselves. They were the ones who did the planning. They were the ones who financed the convention out of their poverty-stricken treasuries, which makes it all the more thrilling.

Here, for the first time, the agrarian unions from a large area in Brazil came together, discussed their common problems, and arrived at common conclusions.

To my mind, nothing more thrilling can happen in Brazil than this. And it could not have happened, I think, without the original planning that came from AIFLD and without the hearty support of AID and our Ambassador in Brazil, and particularly again I want to pay tribute to Herb Baker, Labor Attache.

The programs that we carry on in these centers are educational programs. Contracts have been entered into with Agnes Erskine College, for example, for literacy programs. Our educational director constantly carries on labor education programs. Contracts were arranged with the State of Pernambuco for agricultural training, and for training in crafts--carpentry, mechanical work, and that kind of thing. There are classes in sewing, nutrition, and more and more of the campesinos are coming in.

This is our proving ground, you might say. It is a pilot affair, but it has proven very successful. The split in the rural labor movement is now beginning to heal. And by and large we do feel that this program is providing a great service to Brazil and is beginning the restoration of dignity to the campesino.

Now, the agricultural part of this, of course, relates not only to the parceleros, the owners of small parcels of land, but also to those who do not own any land but who work on the sugar plantations in that area. The law provides, for example, a minimum wage, which is rarely met. I believe the minimum wage is something like 1,800 cruzeiros. And now I believe the exchange rate is something like 2,600 or 2,800 cruzeiros. However, none of the campesinos, none that I know of, are getting the minimum wage. Instead of the 1,800 cruzeiros, most of them are getting about 1,200.

The law has another provision saying that each worker on a plantation shall receive two hectares of land for himself and his family to work during the period he remains on that plantation. That, too, has not been implemented.

But with the strengthening of the rural labor movement, and with a greater understanding of the campesinos, it is likely that their influence will increase and lead to at least the enforcement of what the law now provides for the protection of the campesino in the northeast area.

There is much more to be said, but I think that takes up my time. I thank you.

MR. DILLON: Thank you very much, Mr. Lundberg. Our next speaker is Mr. Wilber W. Lauer, who has been Vice President for Personnel Administration for the United Fruit Company at the company's general office in Boston since December 1966.

Mr. Lauer joined United Fruit in 1962 as Director of Personnel, and in 1965 he was appointed Director of Industrial Relations.

Previously Mr. Lauer was a Vice President of Emhart Manufacturing Company and General Manager of its Knapp division in Hartford, Connecticut.

Prior to his association with that company he was a Vice President of Merck, Sharp, and Dohme.

W. W. LAUER: I am glad to be here today to talk about United Fruit operations in Central America. Some of the things we are doing may have some relevance to the general problem of Human Resources and Food Production in the Private Sector.

It probably would help your perspective if I told you first about United Fruit's operations. We are primarily located in the Central American countries. We have some operations in Colombia. Our principal product, as you probably know, is bananas, and specifically,"Chiquita"bananas. We do produce other agricultural products in the Central American countries and we are distributing our output throughout Europe and the United States. We are on the threshold of beginning to open markets in Japan, which probably will turn out, perhaps in five to eight years, to be among the largest markets for our products in the world.

United Fruit has been in agricultural production for many years. We have extensive plantations--we call them farms--throughout the Central American countries, employing thousands of workers. At the present time we have somewhere in the neighborhood of 40,000 employees in the Central American countries.

Now, the comments that I make to you today are limited in their application, because what we are doing as a company in Central America is obviously responsive to the conditions that we meet in that particular region, and responsive to the particular end we have in view--namely, to produce bananas, to bring them to the market place, and to sell them at a profit.

I do not want to leave you with the impression that we think what we are doing necessarily has application much beyond our own farm boundaries.

In growing bananas, the primary lands we use have not historically been used for any other human purpose. They are in the bush lands, they are in the lowlands of the Central American countries. Many of them are carved out of jungle. Generally, they are areas that have not been inhabited by large numbers of Central Americans.

When we talk about human resources in food production, this immediately suggests how we have to look at the subject of our conference as it applies to United Fruit. Our first task was to get people into the areas where bananas grow best. It is the first obvious step in making these jungle areas productive and capable of turning out a commercial product.

The first problem we face is bringing people to the areas where we are going to grow bananas. This means nationals or local people in substantial numbers, and it also means foreigners.

If you were to visit some of our areas, you would quickly see that we have had to give a substantial amount of time and attention to the problem of community development. At the exploratory stages our people live in tents or temporary shelters for months on end, but when we reach the mass production stage, it is necessary to be concerned with community development.

Now, we do not think of ourselves as community developers. Our operating people in the tropics do not think of themselves as community developers. Yet this is the first step in an undeveloped area that we have to face in terms of getting the human resources necessary for productive enterprise. Community development includes almost every facet of the community as you and I know it. It means sanitation control; it means housing; it means hospitals; it means religious institutions. It means schools, communications, roads, railroads, and radio. These are the things our company has to do in order to be in business.

The governments in these various countries obviously play a very important role in this problem of community development and in creating an environment in which workers can live.

It has been our observation that some of the methods that we have used in years past probably are not best suited to today's conditions. We have practically all of our farm labor living in company houses. As a long-range goal we view this as an undesirable way of meeting the housing problem, but it is the only way today in many areas. Our people are of the opinion that new methods really should be worked out to put the whole problem of community development on other than a company town basis.

United Fruit has done an outstanding job in various aspects of community development in the Central American countries. We have some of the best hospitals in the areas. We have a very substantial budget for medical health throughout these areas. We have large hospitals that we operate. We run numerous schools. We maintain many roads. We still provide employees with their housing, but in our view is is an undesirable long-term arrangement, particularly for our company, which, in fact, creates the community and owns and operates the facilities.

We use many devices to try to get around this. We are of the opinion that this is an area where government, the local government perhaps with the leadership of outside governments, ought to provide or devise new schemes, new ways of developing communities so that private business operations can come into the area as a business enterprise rather than as a global big brother.

We do have in all of our areas quite an adequate supply of people. As a matter of fact, in most of the areas, as far as unskilled and semiskilled labor are concerned, we have a surplus. Our second major problem has to do with the development of the human resources for these people. Many of them have very little education. As a matter of fact, on our own operations we still have many workers who are illiterate. In some areas we have Indian tribes that work our farms, and many of them are not about to go into the school system.

But our company has seen the need--and in some areas is required by law--to run school systems so that we get the children in school, teach them to read and write, and have them learn some of the basic skills of being productive people. We run about 70 to 80 schools, and have about 12,000 students--all in primary grades. We have about 300 teachers. Most of these are Spanish schools, but some are English.

But it is not enough merely to do this. We have tried to open up channels for the brighter pupils to go beyond the sixth grade, and beyond the eighth. Some of our schools cut off at the sixth grade, others at the eighth grade. We have provided scholarships and loans to get the brighter pupils into higher education, with the hope that some of them will come back to their home areas, and some of them do return.

Within the operations of our farms, we obviously carry on a lot of training. Much of it is on-the-job coaching to increase skills, including some relatively sophisticated machine shop operations. We find that in most of the areas the people are very trainable, eager, and so long as they have the opportunity for guidance and a planned promotion through increasing levels of skill, they meet a very substantial part of our company's requirements through training within the company.

In terms of the higher level jobs, the picture is somewhat different. We have difficulty in bringing technically trained people into the areas when they are needed. As a matter of fact, we find that a good number of the men that are going into college, both in Central American and United States universities, really are reluctant to go into the bush country, even though we pay a premium rate. They prefer the metropolitan areas. It is extremely difficult to attract these trained people into the areas where our operations are located.

Now, banana production--and I am quite sure this is true of other commercial operations--is becoming increasingly complex. For example, one of our crying needs is for programmers. You just cannot find them. You have to train them, or if you do find one, it is a question of offering a very high incentive to get them to come to our area. This is merely one example. We are going into very complex procedures for forecasting fruit cuts, distribution, and fruit quality. As a result, we are having an increasing need for technically trained people at the higher levels. These are very hard to come by.

We do not have the final answer. We train people in the United States and we send them into these areas. We recruit at Latin American schools and universities. We pay premiums. But by and large, our feeling is that we do not see enough local people, enough nationals, coming along at these levels to take over management responsibility as fast as we would like.

The third part of our concern in terms of people is motivation. We have found that--and again, this is just United Fruit--it is important to do the things that upgrade the quality of living in these areas. This is a very strong motivation. A young wife, thinking of larger horizons, has got to have the sense of being able to get out of the bush country and up into town. This is a very important motivation in keeping people in these areas. The home recreational opportunities are extremely important because these are self-contained communities. Our company attempts to improve this part of community life for our workers, for our technical people, and for our management people.

We have found that so far as financial incentives are concerned, piece rates are extremely important for farm labor. We find many of our farm employees very responsive to the opportunity of increasing their income by working harder. We have a fairly extensive application of piece rates and incentive rates, where the employee has the opportunity by his output, to increase his return. This is an old story in the United States; I only report to you that we find in United Fruit that it works in Central America just as well as it works here -- people who have family responsibilities like the opportunity of increasing their income.

We find that promotion as a means of recognition and enlarging responsibility is an important factor. We try to structure jobs and create promotional paths so that people can have a succession of job placements that spells recognition.

Leaving our own employee situation aside for a moment, let me take just two minutes in closing to tell you another part of the United Fruit story that may have some relevance here. Our people have created what we call an Associate Producer Program. This has been an arrangement under which we have made it possible for some employees--some nonemployees, too, incidentally--to acquire productive land, to go into banana production and sell their fruit to the company. There are quite a number of very successful, privately-owned banana farms which are producing bananas, selling them to United Fruit, and the owners are making a very good living at it.

In a manner of speaking, and in a very small way, this is creating something of a new entrepreneur class. Most of these people were poor to begin with. They either were foremen--most of them were foremen--or overseers on our farm. They had ambition, were hard workers, knew banana culture, and seemed like a good risk. Our company supported them with long-term loans. Out of their output they are repaying the company, and will be owners of their own lands with an independent income.

There have been a lot of problems involved that we have had to face in this particular venture. But it is another example of the enterprise we encounter in the Central American countries, and which I think, in the long run, is the symbol of the kind of thing that eventually will extend throughout the whole region. Thank you very much.

MR. DILLON: Thank you, Mr. Lauer. Our next speaker is Herbert C. Fledderjohn, President of the International Cooperative Development Association.

Mr. Fledderjohn graduated from Indiana University with a B.S. degree in 1931. He joined the staff of the Central States Grains Cooperatives in Indiana as an accountant. Later, when the cooperative became a part of the Indiana Farm Bureau Cooperatives Association, he advanced to education specialist, auditor, public relations director, advertising and market research manager, and in 1953 he became assistant general manager.

There is a lot more that I could read here of Mr. Fledderjohn's background. He has returned recently from a working visit to India and Iran, two countries that are trying to face up to food problems.

Mr. Fledderjohn has been concerned with both ends of the problem. In India, he helped to negotiate greater production facilities for fertilizer to increase food production. In Iran, he counseled the Government on food marketing problems in its attempt to cut waste and costs. It is a pleasure to present Mr. Herbert C. Fledderjohn.

MR. FLEDDERJOHN: Thank you, Mr. Dillon. Ladies and gentlemen, we appreciate the opportunity to participate in a session of this kind. There is no need here, I think, to repeat what has been said many times about the need for increased food production. The fact is, that the United States and the developed countries can no longer make up the food deficit that is growing. We must find ways to increase production in the less-developed countries.

I would like to address myself specifically to the role of cooperatives in this process-- and I think it is pertinent, when we are talking about manpower, because essentially cooperatives are people. They become a device by which people can develop in order to contribute to their own welfare and the growth of their economy.

It is significant, and not often recognized, that in no country in the world is there a progressive, aggressive, productive agriculture, except where you find a strong cooperative movement. There could be some debate about which is cause and which is effect, but the fact is, that wherever you find the productive agriculture you will find strong cooperatives.

I think the factors that go into increased agricultural production are well known. Our experts have identified these a long time ago. We need research to develop better seeds and better cultivating methods. We need plant protection supplies. We need fertilizer and all of the other agricultural inputs that we know can contribute to increased productivity. We need knowledge on the ~~part of the~~ cultivator to use these inputs intelligently and effectively. We need credit in the hands of the cultivator to make it possible for him to buy the inputs that will increase his production.

What is not often recognized is that we need certain commercial services available to the cultivator if we are really to transfer this abstract technical research into actual production practices. We need a store where he can get fertilizer and plant protection supplies and the improved seed. We need marketing services that will provide him with a constructive outlet for the increased production, without which there is no incentive to produce.

It is difficult to quantify the contribution that these commercial services in support of agriculture have made to our own agricultural production in the United States. We are particularly sure that the commercial services provided to farmers by their own organizations, their own cooperatives, have never been fully measured or appreciated in our own agricultural development.

I would ask you to think of the problems of the small farmer in one of the developing countries for a minute. He probably begins by being hopelessly in debt to the money lender. He pays 30 to 100 percent interest per year on this money, which means that he is further in debt. Even the best of our United States farmers could not survive with this kind of a credit source. His crop is already committed before it is produced. If he has used his credit to buy fertilizer and improved seeds this is good, but more likely he has used the credit to stay alive until the next crop came in. In many places in the world, if he decided that he wanted to use more fertilizer, improved seed, or plant protection supplies, the likelihood is that they would not be available, or if they did become available, it would be after the crop is already planted. His source of supply is very uncertain. If he does produce a surplus he will carry it on his back or by bullock cart over impossible roads to the one buyer who is available to him. If he does not like the price he has the option of taking it back home over those same roads.

Now, in these circumstances, I invite you to think about the incentive that exists for adopting improved practices, taking the risks, paying the high interest cost, and then marketing whatever surplus he has in an uncertain or nonexistent market.

The hard fact is that there is not the kind of commercial support of agriculture that gives very strong likelihood for increased production. And if production increases, there is not the mechanism available to the cultivator to see to it that this really results in an increased standard of living for him and his family.

I thought that the Watson Advisory Committee on Private Enterprise in Foreign Aid made a very significant observation. It said in one place, "The less-developed countries lack the men and institutions to insure that the fruits of their growth will be fairly distributed. Most of the commercial, social, and cultural structure which we in the advanced countries take for granted, has to be put in place brick by brick." This is what the cooperatives are all about in the field of agricultural production--the creation of institutions that will make it not only possible to increase agricultural production, but will insure that the cultivator has a reasonably decent chance to share in the fruits of that increased production.

I think we have learned the hard way that development, particularly in the agricultural field, is not purely a technological problem. We have to find the devices by which the people get involved--the people who are actually going to do the planting, the cultivating, the harvesting. In some way or other they have to get involved in the process and feel a part of it, or no development takes place.

Now, we may be a little on the prejudiced side, but we think of the cooperatives as the prime organizational device, not only to render the kind of services that make it possible for agriculture to really develop, but to involve the people in the development process.

I am just back from Iran, and so it is fresh in my mind. In a small area that I visited north of Teheran--between there and the Caspian Sea--I had an opportunity to see this process in operation. Here on lands recently distributed or allocated to farmers, they have organized cooperatives and have done, I think, an excellent job. From a strictly cultural standpoint, I do not think any great revolution took place. The same people are, for the most part, working the same land that they always did, except that now they have some opportunity and some hope of becoming the owners of these lands.

Through the cooperative, limited funds were made available for loans to these farmers to buy agricultural inputs. Not enough, unfortunately, but the farmer can get a loan even if it is only enough to pay for half of his fertilizer. For the other half he has to go to the money lender. To his cooperative he pays 6 percent interest (which is too low). He should be paying his cooperative 12 percent, but he is still better off than if he had to go to the money lender for all his credit. If he pays that loan off--and incidentally, except where they have had floods or other natural disasters, the loan repayment is practically 100 percent--and if he follows the process of more-or-less compulsory investment in his cooperative to increase his share, he qualifies for a bigger loan. Over a period of two or three years--and this is a relatively new scheme--some of the cultivators are beginning to get to the place where they can cover most of their credit needs from loans from their cooperatives and use this to buy fertilizer and to purchase improved varieties of seed.

One young farmer we talked to had, with two or three of his neighbors, used co-op credit to buy a tractor--one of these two wheeled types with the big wide wheels that will not sink in the rice paddy. They had replaced their bullocks with this obviously improved mechanical technique. He was quite proud of the progress that he was making.

We saw good examples of what happens in involvement, too. As we visited some of these cooperatives it was obvious that these farmers had decided that

"This organization is ours, we have some stake in this. We can use it to improve our lot." In at least four of them that I visited, instead of taking the savings which they had earned in the cooperative as a cash patronage refund, they elected to use this money to buy a simple rice huller, and in one case a simple rice cleaner, so that they could upgrade their product before it went to market.

Then they got together in the village and contributed the labor to build the building that would house this. They would take you around with great pride and show you their motor and cleaner and the little room where they are storing fertilizer, with the sense that "this is ours." They are really involved. They now have a stake in the development process. And they and their village will reap at least a good share of the benefit.

Professor Holt in Great Britain says, "In reality cooperatives are educational devices that use business operations as the teaching technique." I think there is a lot to be said for this. Obviously, the people in these villages and others in Iran are growing tremendously. They are learning by the real process of becoming involved in a business operation.

You will remember the old saying that the only way you learn to ride a bicycle or milk a cow is to do it yourself. The way you learn about business and the processes that are involved in improving agricultural production is to get personally involved. This is what happens when cooperatives are well conceived and supervised, where their members are trained, and where they really develop a sense that it is their device for their own improvement.

Now, I may have made it sound as if cooperative development is an easy process--it is not. It is a difficult process to get people involved with the cooperative device and to integrate them into their own production and marketing process.

Members must understand what the cooperative is. They must have some idea about their responsibility to it. They must understand that it is not some sort of magic which creates instant prosperity. What is the most difficult, they must learn to manage a business operation, for which most of them are by experience almost completely unprepared.

The cooperatives in the United States have organized the International Cooperative Development Association. This is an association of most of our leading cooperatives in the United States, who in the interest of economic progress, in the interest of social justice and in the interest of human dignity, have joined together to export the technical know-how about cooperative organization and operation that has meant so much to our own agricultural development in the United States.

Particularly in the field of business management, where a great lack exists in the underdeveloped countries, we think we have a particular contribution to make.

Mostly, under contract with AID, but in some cases with our own resources, we are making available in these developing countries the expertise of experienced cooperative management from here that will help some of these organizations over the rough spots.

It is easy to take a cynical look at the development opportunities. Let us face it, there are social problems, there are cultural problems, there are legal problems, there are political problems. But we are greatly heartened in our own experience at the way people respond when they have an opportunity to understand what they can do working together in a mutual enterprise.

It is also a part of our feeling that this is sound human development. It is sound economic development. It is sound in terms of the kind of free social organization which we think is basic to peace and progress in the world.

The economist, Irving Long, has said that "economic underdevelopment is primarily and fundamentally a consequence of institutional underdevelopment. The fundamental social and political character which will emerge in the countries now about to leap into the stream of economic progress, will be determined by the types of institutions they develop for the purpose."

We have a strong conviction, on the basis of our own experience in the United States and what we have observed in the developing countries, that cooperatives are one kind of institution that can be developed as a principal device in seeing to it that we can live in a peaceful and productive world.

Thank you very much.

MR. DILLON: Thank you, Mr. Fledderjohn.

Our next speaker, Mr. Weisblat--and with your permission, sir, I am going to condense this a little bit--is at present on the staff of the Agricultural Development Council. Since 1958 he has had a major responsibility for the counseling program in South Asia and the Philippines.

The Agricultural Development Council is an organization supporting teaching and research related to economic and human problems of agricultural development, primarily in Asia. The council was established by Mr. John D. Rockefeller III, and is supported by Mr. Rockefeller and the Rockefeller Brothers Fund.

Mr. Weisblat's current research is in two areas, land tenure and land reform in South and Southeast Asia, and institutional factors affecting increased productivity in Asian agriculture.

Mr. Weisblat received his B.A. degree from New York University in 1939, his M.A. degree from the University of Wisconsin in 1944, and his Ph.D. from the same university.

He has taught in several places and he has a very interesting background.

And it is my pleasure to present Mr. Weisblat.

A. M. WEISBLAT: There is always a danger of being the last person in the group and, after hearing Mr. Fledderjohn's description, I am not sure how my things are going to fit.

I know Mr. Fledderjohn's organization well.

But let me raise some issues that are complimentary or possibly even different from Mr. Fledderjohn's.

In the first place, I would like to concentrate my short presentation on India. And I would like to put it in the context of the problems of food production in India and center it in this area.

I selected one country just to remind the audience--and I do not think one has to as I listen to the others--that there is a great danger in generalizing about the different geographic regions. I made my first trip to Latin America this fall and I do not think I have had a greater sense of cultural shock, even after having spent the last 13 or 14 years working in Asia. It reminded me that we still have in various parts of the world very different agricultural problems. India, it is quite important to remember, does not have the large hacienda. It does not have the large operation of 2,000, 5,000, or 6,000 hectares. You are dealing essentially with farmers that are fairly small--a 200-hectare farm is a large establishment.

I may be overexaggerating but I think the food production problem in India can be stated quite simply. You have a population growth rate of roughly 3 to 3 1/2 percent a year. And your problem is how to increase food production to meet this immediate need.

The agricultural technicians, as you already know, have come up with what they consider the best way of arriving at this on the technical side, that is, the so-called package approach. Their argument is, you will have to move ahead and take the new varieties which they produce--Mexican wheat, the A.R.I. rice, which is the miracle rice which the American Research Institute has produced--and begin to utilize those.

There are a couple of important factors about these varieties. They are what I would call capital-intensive rather than labor-intensive. The important thing, as you probably know, about these new varieties of wheat and rice is that the increased yields only come about because you can put on larger amounts of fertilizer. In the traditional varieties of rice and wheat the fertilizer input could be about 40 pounds and the production curve would drop and you could not get increased production. The A.R.I. rice, the American dwarf variety, will take up to 120 pounds of fertilizer, and still the curve of production will go up.

Now, in addition to the fertilizer, particularly in rice, you do not get anywhere unless you have water. Rice simply does not grow, in terms of real increased production, regardless of the new varieties, unless you have water. So what you are really asking for is improved irrigation systems, and new varieties. You also want increased amounts of fertilizer, and insecticide to deal with the various diseases, and all of these require capital.

And this, as you can well recognize, becomes a very serious problem for developing countries where capital is a limited factor.

Furthermore, as Mr. Fledderjohn has pointed out, you also have to create the institutions which make it possible for the inputs to come into the hands of the farmer and institutions to facilitate the marketing procedure. And I would certainly agree with Mr. Fledderjohn that the function of the institution, such as a cooperative, is not limited to the resource allocation. They may play a number of other roles, but I would also like to point out that they are very strategic in terms of the distribution of the inputs.

Now, in the outline that I received there were a number of items to be discussed. One item was a query about the actual and the ideal extent of private program participation in the development process.

Well, it seems to me that there are a number of roles to be played by the private sector. Just let me give you the magnitude of the requirements in India. This is a report done in 1965. Dr. Ralph Kumm, who was there eleven years with the Rockefeller Foundation and is one of the able men on Indian agriculture, has estimated: "The country must double its gain production in fifteen years. There is little new land available for cultivation. So the increase must come from greater yields which are obtainable through the use of better seed varieties and adequate fertilization. The Government, however, has only limited quantities of improved seed and fertilizer. So it has selected 32.5 million acres of land with assured moisture."

This land will be sown with improved seed as follows: four million acres in corn; four million acres in sorghum; four million acres in millet; eight million acres in wheat; and 12 1/2 million acres in rice. By using up to 80 pounds of nutrient per acre and fertilizer on this land, it is hoped that an extra ton of grain per acre will be produced. To accomplish this goal, the country must produce, or import, 2.4 million tons of nitrogen, one million tons of phosphatic fertilizers, and 700,000 tons of potassic fertilizers by 1961.

Now, I just give you these to illustrate the magnitude of what the needs are.

Now, clearly with this kind of a requirement the private sector, both the profit-making sector and the non-profit making sector, has a real role to play.

In the first place, I see nothing in the newspapers and the discussions of the Congress to make me believe that current aid levels, either in the United States or the rest of the world, will go any higher than they are now. If you look at the discussions of the Consortium on India, everybody was quite happy and pleased that United States AID assistance maintained the levels they did. So in a sense we have reached a kind of leveling off of what the United States and European public sector will provide, give or take a certain amount.

It seems to me that the private sector has a real role to play here, because it can, and does, in fact, have both the technological know-how and the capital to take over, particularly part of the fertilizer problem.

The second thing, I think, which certainly makes sense for the private sector, is that it can make money. One of the interesting discoveries that a number of the large new international companies have made is that even though in a number of instances the foreign country may require them to give up major control of their company abroad, they can still make quite a bit of money.

The third thing, I think, is an appreciation of some of the problems on the technical side that we sometimes get impatient with in the public sector--and I am not just talking here about the bureaucracy of the public sector, but the problems of political pressure. To really move these new packages, to get increased production, takes time. And I think it is the people who are really involved in the process of introducing fertilizer and building fertilizer plants that have this kind of appreciation.

It is rather interesting to me--and I know nothing about the field of engineering of fertilizer plants--but, if you talk to people involved in fertilizer plants, it turns out that no matter how good the private sector operation is, there is no predicted factor of how quickly a fertilizer plant will go into optimum production after it is put in. This has something to do with the problems related to ammonia. But I remind you, when you get over all of your bureaucracy, you are still going to face technological facts. So for a variety of reasons that I have given it makes sense for the private sector to play an increasing role.

So I am talking about providing private assistance. Here I would like to address myself specifically to India. I am sure anyone with much experience in India is quite aware of the problems of working there. I have read a number of reports which point out, that in negotiations with India, where private sectors try to move in--and this is sometimes true for the public sector as well--the Americans experienced some frustration.

Well, I have a thesis I wish some psychologists would undertake, that is, whenever you go to another country--and this is not limited to Americans but applies to other nationalities as well--you tend to set a standard of values for what those people ought to do in terms of what you would like to believe your own country does. I think when we arrive in another country, or when an Indian comes here, there is a great forgetfulness, if you will, of what your own country does.

The first thing I would like to point out is a problem that we simply must recognize, both in the private and the public sector.

I believe that we forget that India is a democracy and that the majority of countries in Asia have some form of authoritarian regime. India remains a democracy in which people still vote and who must be elected by the people.

Now, I would venture to say--and all you have to do is look at the public debates regarding Vietnam or aid programs--that the decision of what finally is passed by a Congress, or what you send to a Congress for passage, is strongly affected by what your own national groups think about it, your own local political situation.

And the Indians are faced with the same problem.

After all, when somebody has to stand for election in India, they are faced with certain historical patterns that are not identical with what we have, but have a peculiar bias, perhaps more to the left than ours. It is a country with great anticolonial traditions. Remember this, their entire conception, until after the revolution, was based on the idea that the private sector represents exploitation, and they have some historical evidence to support this idea.

So,any minister in the Indian Cabinet inviting in an outside private sector organization, simply must recognize that these are some of the problems he must face if his party hopes to survive.

Again, I do not think there is anything unique and difficult about that. The same thing happens in the United States, except that our particular historical background is quite different.

Furthermore, in the last few years the Indian Government has been faced with a very strong and a very articulate, extreme left-wing which it has had to deal with in this kind of thing.

In other words, public goals and policies of one country do not always parallel those of another. And there are in essence some basic differences, I suspect, in the goals of India and the United States.

I think we simply must face this. I am not saying that we therefore do nothing about it, but I am simply arguing that you must have a little more sympathy with why they do some of the things they do.

Another interesting thing, I believe, is that when we push the notion of private enterprise in the commercial sense, we sometimes forget that we have not always followed this tradition.

I was told--and I believe this is valid--that when the Indian Minister of Agriculture had discussions with the United States Secretary of Commerce, the latter noted that the Minister did not allow the private sector to be responsible for the production of fertilizer, and the Minister gently reminded the Secretary that 26 percent of United States fertilizer production and consumption is handled by cooperatives. I believe this percentage is correct, or is close to that figure.

Finally, I think that one of the things that creates a real dilemma and a real problem which the Indians face, probably more than any other country, is what I like to call the conflict between justice and productivity. This conflict occurs if you take the position--and mind you, the Indians have--that you want to increase production by four to six percent a year. That is a tremendous increase in production. We forget when we talk about great breakthroughs, historically, that the great increases in production in rice in Japan and Taiwan were in the magnitude of four to six percent. There is no such thing as a 20 percent or 30 percent increase. India hopes to attain this four to six percent increase, but the country has limited irrigation, has limited capital to buy the inputs, and most of this increase must occur on 32.5 million acres of land! In other words, the Indians will have to concentrate their inputs, at least in the short-range, in around 20 or 30 percent of the agricultural land. If they want to get this kind of production they have no other choice.

Now, the dilemma is this. If you do this--and they must--it will not be on the land where the lowest income group lives in India. It will not include that 13 percent of the population of India in the agricultural sector which is living below subsistence levels. You simply cannot waste, if you will, this kind of input.

And then the dilemma is, what do you do? In other words, you do not have a choice in the matter.

I think the Indians have made their decision. They are going to have to put it on the productivity side. But they are faced with some real political problems in doing this. I think an awful lot of their hesitation in what to do comes from the fact that, in a sense, they have been looking for some alternatives of what you do with this group that cannot be helped. In fact, what you are going to get in most of the countries in Asia where you go through this process is the income gap getting wider between the rich and the poor, in the short run.

Now, what can the private sector do?

I think there are a few things we can do. One is to appreciate the problem these people are faced with. I think the co-ops, for example, can and already are representing the small entrepreneur who has the willingness to take risks. Beyond this, as to the very lowest income group, I am not sure. I wish I knew the answer. I think we need some more experimental work in this area, and some of the imagination that has been put in to the other areas.

You know, we have never paid any attention to the very lowest income group, because our traditional pattern has been just what we are advising them now. That is, if you want to spread a new idea, you have got to get the innovators, the leaders of the upper 20 percent to do this, and then everybody else follows. We never had a time in our world before when the other group was operating on such a low-income level, when the income maldistribution was so acute, when there was such a strong sense of nationalism, or when there was so little opportunity for these people to move out of agriculture. This, it seems to me, is a rather critical difference.

One area that I have always wondered about, an area where I do not think we have really shown imagination, where I think the private sector could do something in a helpful way, is in the area of mechanization. Historically, we have always talked about mechanization as something which can only come in as you do away with surplus labor and have a labor shortage.

The Japanese, for example, have demonstrated that you can use small machinery, you do not have to have large things. Are there ways and means of developing small-scale mechanization that really will be of help to small farmers? I do not know. I just think it is an area of great neglect.

Another area, of course, is developing nonfarm opportunities. And this has been mentioned by a number of people.

Here, all I can say is that there is a need and there is a hope of developing small-scale industry in rural sectors, particularly for local consumer goods. There are a lot of things these people want in these areas that they cannot get because there is no way of getting them. If you could develop some of this in these areas I think it would be very useful.

I have one other thing which may sound controversial. I am quite impressed with what I call the contribution of sweatshops to a developing economy. I am very much impressed by what I have seen in a number of areas, such as Punjab in India. I have also seen this outside of Mexico City. You begin to see the development of small shops, little holes-in-the-wall, where people work in a place where there is poor ventilation, yet they are turning out bicycles, or a variety of small things.

Now, it seems to me that there are two or three contributions that come out of that. One, it creates some local capital. The second thing it does, it begins to give some of these people that come out of agriculture some skills which will then permit them to go on and move into the larger cities. The sweatshop part--well, I am not sure that the workers are any worse off than they were before--maybe that is a bad term to use, it is still a dirty word, I suppose. What I am really saying is that I think that we should, in any way that we can, encourage them to develop any kinds of entrepreneurship on the smaller scale in the agricultural sector to begin to develop simple little things that people can use and want. This will 1) give incentive for increased production, 2) create capital, and 3) give people some of the skills that they need to get them to the city.

This does not mean that you do not want to go on with educational programs, and so forth. I simply raise this as one way of doing this.

Thank you very much.

MR. DILLON: Thank you very much, Mr. Weisblat. And now comes the time for questions. I am sure there must be a lot of questions.

DUDLEY DAVIS, Department of Labor: Mr. Fledderjohn, I am very sympathetic with your interest in co-ops. But I have been in a country where I have been told that the co-ops are not really run by the people that are supposedly running them--that the co-ops are organized in the agricultural sector, and that they are really run by slickers who take advantage of the cooperative name to exploit the farmer rather than to give him a chance to develop the business himself. It seems to me that in underdeveloped countries this is a great risk, and might apply in other countries.

MR. FLEDDERJOHN: It has been suggested that in some places that the cooperatives, in name at least, are really not organizations owned, operated, and run for the benefit of the people who use them, but by exploiters who use the cooperative device as just another one for taking advantage of the people. And I am sure this happens some places.

I think an even more common criticism is that in some places cooperatives become more like an arm of the government used to carry out government policy, and do not really reflect the kind of self-help that we normally associate with cooperative activity.

In most of the developing countries it is true that the government is considerably involved in cooperative development, which I do not think is necessarily bad. We would like to see situations where the government, having assisted in creating and supervising and encouraging cooperatives, would phase out of this as the people were able to take over the operation.

We have precedent for this in this country, in our own farm credit systems, for instance, and the rural electrification cooperatives. These programs were started with strong government assistance but now we find the members have a sizeable financial interest, and are finally taking over total responsibility.

I think you could find every kind of a situation. I do not happen to be familiar with the one that you describe where private operators use the cooperative device for exploitation. But we do have many instances where the government uses the cooperative name to carry on an activity that is essentially political rather than a self-help cooperative organization. It is a real danger in any place where you depend on government for this kind of assistance.

MARVIN MIRACLE, University of Wisconsin: I am intrigued by the experience of United Fruit with its Associate Producer Program. I want to find out a little bit more about that, particularly how the associates who were not employees had successfully been attracted by United Fruit. In Latin American countries and others there has been the problem of keeping settlers when there has been resettlement. I thought we might hear about industry's approach to that in line with Mr. Weisblat's comments.

MR. LAUER: In most instances where nonemployees have become associate producers in United Fruit's program, they have been local leaders. One of the prime requirements to become an associate producer is some knowledge of banana culture. It is a technical business. It requires a knowledge of various techniques. We will not support or set up an arrangement with anyone who does not have that sort of a background.

Those who have been nonemployees are usually people from the immediate area, perhaps proprietors of stores or craftsmen, or what have you.

It is something of a privilege--we have more candidates than we can possibly handle. Therefore, the problem really is not so much finding men to do it, but selecting from among those who have the interest, ambition and the knowledge to take on the responsibility of a farm.

QUESTION FROM THE FLOOR: Do you lend them the money to buy this farm?

MR. LAUER: Indirectly, yes. We have done this in a number of different ways, but in all cases the company has been standing behind the loan. Preferably we arrange them either through local banks--in some cases we have actually used banks here in the United States--but in all cases the company, in effect, is guaranteeing the loan. We try to keep out of the direct relationship of making a loan ourselves.

ANNA-STINA ERICSON, Department of Labor: Mr. Lauer, do you have any training programs for these independent producers so that they may maintain their technical proficiency in the field?

MR. LAUER: One of the conditions--one of the contractual relationships of these agreements is continuing technical support from United Fruit, or from our subsidiary that is in the particular region. This includes disease control, in some cases, spray, which is done aerially and includes trips to technical stations for briefing and orientation sessions. There is constant technical support by the company for these people.

QUESTION FROM THE FLOOR: I am asking Mr. Weisblat if he is aware of or knows something about the so-called "putting out" system in Japan where methods have been developed for subdividing the manufacturing processes so they can be put into the homes of a large number of people in the community, and thus provide employment and extra income. This seems to be associated with rural communities in Japan, and thus may deserve some consideration.

MR. WEISBLAT: We should spend more time seeing how we can utilize this kind of thing. I am sure that some work on products that I saw in the Punjab is done in the home, too. I do not know. But I think it would be very useful if we had a little more historical compilation of the variety of ways that products are produced locally.

There is a lot of work being done in developing local industry. The Ford Foundation has had a number of teams out and they have done quite a bit. But these projects require a little larger capital than the ones I mentioned. I am really thinking of pretty "small potatoes" here.

I would like to make one other comment on this democracy thing, because I feel it is extremely important. An Indian has made a very perceptive comment about the problems of Indian democracy, particularly with respect to the impact of socialism. Somebody said, "Why is there so much waste in Indian production?"

"Well," the Indian said, "you see, in a capitalist society competition punishes waste. In a totalitarian system terror punishes waste. The trouble we have in India is that socialism did away with competition and democracy did away with terror, and we have the worst of both worlds."

And I must say I think there is some real perception in that statement.

HENDRICK MUGAAS, Department of Labor: I have a question for Mr. Lauer. I believe that in the Central American ~~countries the~~ export of bananas has brought in a greatly increased income to the company, and I also believe to the government, I mean part of their revenue is from the export of bananas.

Now is the government going to give you any help in producing this revenue by seeing that your activities are increased, or have you reached sort of a plateau?

MR. LAUER: Initially when we went in to most of these countries, we did it on the basis of agreements between our company and the individual governments. These contracts imposed certain obligations on our company, and at the same time, they provided certain incentives to our company in various forms.

We do not anticipate that these arrangements are going to become in any sense more favorable--some of them have time yet to run. But more and more we find ourselves bearing the full cost of activities which, in the United States, you would consider to be the obligation of the government.

We did have concessions in the early days which made it possible for the banana industry to get started. But we do not look forward to any additional aid beyond that which we enjoy now.

HAROLD DAVEY: Department of Labor: My question is addressed to Mr. Fledderjohn. It has to do with the relatively small percentage of help that we are giving to the Indian cooperative movement through AID and other sources. As I recall, a couple of years ago one of the reports on the Humphrey Amendment indicated that the United States Government, through AID, was supplying some $25,000, total, to Indian cooperatives. In Jordan, however, a country with only a couple of million population, we were spending a couple of hundred thousand dollars in the field of cooperatives. This, despite the fact that cooperatives in India are about the second-highest priority in their national plan.

So with this background, what do you see as the impediments within AID to recognizing and giving sufficient importance to the cooperatives in India?

MR: FLEDDERJOHN: That is an interesting comment, particularly since I spent a couple of years in Jordan in cooperative development.

Our AID programs have been designed to respond to priorities that have been assigned by the host country. We recognize, I think, that in India the great push, until recently, has been in industrial development rather than in agricultural development, per se.

It is unfortunate that more emphasis has not been put on agriculture and in cooperative development as a support. Frankly, I am hopeful that this relationship is changing somewhat. As a matter of fact, on a recent trip, the Indian AID mission was very much interested in seeing what could be done in cooperative development and supporting some activities that we are proposing in this area.

Of course, one thing I think we have to recognize is that India has been strongly influenced by Britain's long history of cooperative development. It never did get far off the ground except in the field of credit, but they do have some significant developments there in dairy marketing, and in the processing of sugar. The value of co-ops is only now becoming evident to the Indians themselves. So that the trend there, hopefully in response to requests from the Indian government, is that our AID program will put more emphasis in this field.

MR. LUNDBERG: I cannot overlook this opportunity, since Mr. Davey has solicited a remark about what impediments may exist in AID with respect to development of cooperatives. In Colombia in 1964, after a very, very careful survey, we planned a series of three Campesino Service Centers, each of them to be tied in with a supply and marketing cooperative. After two and a half years the mission has approved $40,000 for one Campesino Service Center, but no funds for the supply and marketing co-op which was planned as an integrated adjunct to it. Now, the impediment there has mainly been the Mission Director.

QUESTION FROM THE FLOOR: Mr. Lundberg, what happens to our union developments under the new regime in Brazil, under Silva?

MR. LUNDBERG: It has been going forward, as a matter of fact. There was a period two or three years ago when the government intervention in the agrarian union federations was a very, very serious matter, largely because of a hostile labor inspector for the region. However, in the last two years that situation has changed, and we have encountered no hostility, really, from the government. Of course, the sugar-cane plantation owners are hostile, and put on all kinds of pressure. But there has been cooperation and the organizing efforts are going forward with greater success.

MR. DILLON: I want to take this opportunity, now that our session has ended, to thank our panelists for four interesting presentations. Thank you very much.

Friday, May 5, 1967
MANPOWER PLANNING AND THE ROLE OF INSTITUTIONS IN THE WAR ON HUNGER

EALTON L. NELSON, Agency for International Development: Ladies and gentlemen, we have hit the anchor point of our three-day Symposium this afternoon. I am Bud Nelson, the Manpower Advisor of the Office of Labor Affairs of AID. I guess my primary function is to be pretty much the middle-man between AID and the International Manpower Institute here at the Department of Labor.

Our lead-off speaker on this final panel is Burnie Merson, Director of the Planning and Program Evaluation in AID's Office of Labor Affairs, and who has been my colleague for a great many years. The topic to be discussed by the panel is entitled, as you probably know from your agenda, "Manpower Planning and the Role of Institutions in the War on Hunger".

He is primarily a Middle East international expert in terms of his foreign background and working overseas, which has been largely in Iran and in Tunisia. He is a graduate of the University of Oklahoma.

BURNIE MERSON: I will turn to the first page of my notes where I have tried to outline some of the general principles that I think I picked up here, or at least I confirmed some of my previous prejudices.

It seems to me that several of the people here talked a great deal about a commitment, a commitment to the War on Hunger or a commitment to self-help. The first thing they said had to be done is for the Government to get behind it and give the resources. So it seems to me that the first step--and we are talking about manpower planning--is a commitment, an effective commitment, not just the words.

Now, it can be done through legislation, as we did in our Employment Act of 1946, or it can be done through a ratification, such as the ILO Convention on Employment Policy. It could be done, I suppose, by ratification of the recent Ottawa Resolutions on Human Resources Development, or the one out of Melbourne, or the Asian Resolutions on Full Employment. It can be done in a country's development plan, but it must be more than lip service. To win the War on Hunger it must be a national commitment.

It seems, after listening to Mr. Waters and others, that the War on Hunger really has to be won in a much larger setting--in the setting of national development.

You may give priority to winning the War on Hunger, but you almost have to have a commitment to full employment, and within that, a priority given to winning the War on Hunger, if you are really going to mobilize and utilize your manpower in this struggle.

It also seems that many of the speakers stressed, as another factor, that there must be a favorable environment.

Others have stressed the almost absolutely essential need for local initiative, involvement of people at the local level in the development process, and the great need for individual freedom, for respect for the individual, and for human dignity. But you cannot beat this thing at the national level and force a victory on the War on Hunger. The environment begins with the individual, and at the local level.

The last panel emphasized that the environment might include a situation whereby foreign investment can be induced to come into the country to provide capital, to help do the training, to lend managerial help, and so on.

The next general principle that a manpower planner ought to keep in mind, it seems to me, is that he needs a philosophy or a frame of reference.

This helps in analyzing the particular problem, or interrelating one situation with another one. One is provided by an act which Secretary Wirtz and the President urged as an affirmative manpower policy for fully productive and freely chosen employment. Under that, on the labor supply side, is the formation of a qualified labor force and the allocation of the labor force.

Allocation of labor has an international aspect--the brain drain, for instance. It is concerned with geographic distribution and with movement from agricultural to the nonagricultural sectors. Channeling scarce skills is very important, if you have a short supply and your priority is the War on Hunger.

A manpower planner might think in terms of having the market mechanisms with which to channel your short supply personnel to the priority activities connected with winning the War on Hunger.

I think that a very important thing is the effective utilization of the existing manpower which goes beyond just the misuse of your doctors and nurses and your midwives and middle-level and high-level personnel. It is really a study, you know, of whether they are being used at their highest capacity--using the techniques of job breakdown to see whether nurses aides, for instance, might supplement and do some of the work that registered nurses are doing so that they can be utilized more fully at the high skill level. Welfare of the labor force is also important.

Mr. Vaniman explained that you can train fishermen but you cannot keep them on board ship if it has cramped and crowded quarters. So there is a definite relationship between working conditions and manpower training and utilization.

Mr. Lauer of United Fruit Company has pointed out that you can hack out the land in Central America, but you are not going to get people to go there and stay unless they have certain housing, hospital, medical, and other facilities available to them.

Others brought out the relationship between nutrition and productivity--it could be under welfare--the plantation owner who feeds the workers at noon, or the factory owner who provides a free meal at noon. Sure, you can say that that is for his welfare, but it also adds to productivity. So I put all this under welfare.

Of course, above all, in this general interrelationship I stress human dignity.

One thing that differentiates human capital from any other capital is the fact that human capital is an individual; you cannot stop him from moving around. I was very happy to listen to the psychologist speak about the necessity to appeal to the sense of belonging. I guess that would bring in suggestion systems, good labor management relations, and so on.

So that is another interrelationship. It is no good to just train a man, allocate him, and get him on the job, if you are not going to utilize him at the maximum ability and get your highest productivity. So you have to have this welfare angle woven into it.

Another man talked about India, and the extended family; he called it the joint family. This brings up the social security element. When you have the extended family, in the rural setup you have social security wrapped up in the family, however, when people move to the city, and they work for wages, and live in apartments, you see, they are dependent not on the extended family but on wages for their income. Besides, there is not room for their cousins and second cousins.

So underdeveloped countries have to devise substitute devices for unemployment insurance, separation allowances, old age insurance, pensions or whatever it is, to protect the urban wage and salary workers from these new hazards, from the loss of wages, which means loss of food that, in the rural community, is provided by the family.

Then, on the other side, you have labor demand. We have heard a lot about that, too. Job creation may be brought about by the encouragement of small industries through the use of credit extended to the small businessman, through tax incentives, or through other fiscal or monetary policies. In northeastern Brazil or Puerto Rico, for example, one receives a special tax break if one locates one's plant in rural areas. In addition, tax write-offs or subsidies could be granted to finance on-the-job training and part of the living costs of the trainee.

So if a country is really committed, the manpower planner ought to be involved in this. If it is really committed to winning this War on Hunger, the manpower planner cannot overlook the fiscal and monetary policies of his country and, of course, investment policy.

Capital-intensive versus labor-intensive-- the manpower planner ought to be involved in some of the major decisions that are made as to whether you import more machinery or whether you go to labor-intensive methods. Mr. Cox mentioned that one developing country, instead of reducing the tariff on fertilizer which would cause more corn to be produced by labor-intensive methods, reduced their tariff on farm machinery. So they brought in the farm machinery, which he said was not labor-intensive, and displaced labor. Thus you have an interrelationship there in which the manpower planner must be involved.

Next we must consider incentives. We have talked a lot about the piecework system, and others have talked about giving the farmer an incentive to produce because, after all, he is not going to produce unless he can see a relationship between the extra work and a better standard of living for himself. Certainly, incentives are tremendously important--monetary and nonmonetary types--housing incentives, cost of living allowances, hardship incentives. Foreign service people do not go abroad only for their salary; they also go because they get a $3,000 housing allowance, a cost of living allowance, and commissary privileges. Incentives are a great mechanism for allocating labor and for also utilizing labor more effectively.

Statistics and research are areas which I think most of the speakers indicated need improvement. They said we ought to know more about the nature and rate of unemployment, employment possibilities, rural-urban employment, and the characteristics of the farmer. Thus, we cannot overlook the need for more facts.

I want to mention a couple of other principles. One is institutions. Now, Dr. Long of AID said that what basically differentiates an undeveloped country from a developed country is that the developed countries have a plethora and a variety of institutions, organizing devices, while an undeveloped country lacks them. I was struck by the institutions that have been mentioned here--the radio forum, an institution for multiplying training. When you introduce this new institutional device, and one agent can handle two hundred villages, down goes your need for an extension agency. Other institutions, such as the co-ops, the employment services, the apprenticeship and training services, the labor standard services, the agricultural extension services, professional societies, and a great variety of institutions which translate plans and ideas into action, are absolutely essential. Everybody who spoke before you here, you see, was back-stopped by and worked within the frame of reference of an institution.

Integration--there you have another principle. I gather that manpower planning has to be integrated in the overall development planning, and in turn, within manpower planning you need agricultural manpower planning and you need planning for manpower in the service industries, such as, credit, seed, fertilizers, or, in other words, some nonagricultural input. Manpower planning must include those service industries. The same is true on the output side--transportation, storage, and food processing.

So manpower planning has to fit in with overall development planning, but there are also other plans within the manpower field, all of which have to be interrelated. There is also a great deal of talk about the need for public participation, i.e., for farm workers and industry groups to be represented at the planning level.

This manpower planning is very interesting, and it is absolutely essential to pull together these bits and pieces. As Cox has said, each person sees his part of the program through his own eyes, but there must be somebody in the upper echelon to interrelate those pieces. Thank you.

MR. NELSON: Your agenda says that our next speaker on this panel is Daniel W. Sturt. That, obviously, is not going to be true, as you will see in a moment.

Instead, we have Miss Roberta K. Taylor who some of you have probably talked with over coffee. She has been here every moment, I believe, throughout our three days, and I think we have all found her very charming.

However, I wondered just exactly what background she really had, and then I got her biography and found that she has a considerable background. She holds degrees, a B.A. and M.A. from Arizona State University in Political Science and Public Administration. She has written several articles. She is the Special Assistant in the Office of the Administrator of the International Agricultural Development Service, USDA, working on manpower problems, in the recruitment and orientation of USDA agricultural technicians for overseas work. And she has bonafide credentials in those fields, since she was a Fulbright scholar for two years in the Philippines, where she was engaged in research in agricultural development and in the planning and organization training program at the grass roots level.

Her bio-data says she is in her mid-twenties. And you might be interested in knowing that she is single.

ROBERTA K. TAYLOR: I will concentrate today on some of the things that we have been thinking about in the Department of Agriculture while planning programs and considering the need for trained manpower in agriculture in the less-developed countries.

I guess our primary concern is the realization that the need for food in the less-developed countries can no longer be met by increasing the land under cultivation. The less-developed countries are going to have to increase their productivity per acre, or per hectare.

So one of the first things that we decided to investigate was the relationship of trained manpower to productivity.

We found out that those countries which have achieved the greatest increases in rice and wheat yields over a 24-year period are generally those with the largest number of trained agriculturalists per farmer. Countries which achieved 20 percent increases in rice yields per hectare--Egypt, Taiwan, and Japan--all have one and a half to three agricultural graduates per 1,000 farmers. One country, the United States, which achieved a 56 percent increase in rice yield per acre, has 5.6 agricultural graduates per 1,000 farmers. A similar situation exists in wheat yields.

The countries with less than one agricultural graduate for every 1,000 farmers had the smallest yield increases. A few even experienced decreases.

These figures are not meant to suggest that a country which produces five agricultural graduates for every 1,000 farmers will automatically increase rice yields 20 percent. Many other factors are involved in increasing productivity. A country with a highly literate population, for example, will require less trained manpower because a literate farmer can read about a new technique rather than hear about it from his extension workers. A farmer may decide to use fertilizers for his rice not because his extension agent convinced him but because a government price-support finally made it profitable for him to do so.

But I think it is evident that there is a relationship between increases in productivity and trained manpower in agriculture in these countries.

We went through a little exercise, and took a look at developed countries with high agricultural productivity. We found that they have at least one agricultural graduate per 2,000 rural people. Using this as a base, what does it mean in terms of the number of agricultural graduates that the less-developed countries should have?

Using the ratio one agricultural graduate per 2,000 rural people, we ended up with a figure that right now, in 1967, the less-developed countries in the world should have at least a half million agricultural graduates. Well, from the figures that I put together, they have about 220,000 agricultural graduates right now. This means that there is a gap of over 350,000 agricultural graduates at the present time.

To me, this information is not necessarily useless. I think it gives us an idea of the size of the problem that we face. I think that this is the kind of information we have to have when we are going to start determining what kinds of solutions or the kinds of approaches to the problems we are going to use.

When you think that the less-developed countries, if they are going to come up to the levels of the developed countries in terms of trained manpower and agriculture, are going to need 350,000 agricultural graduates right now, it becomes very obvious that there is not too much that we can do with the techniques that we have been using in the past. It is obvious to me that the training of most of these people is going to have to go on in the less-developed countries themselves.

If the developed countries wanted to send everyone of our agricultural graduates to the less-developed countries to help them in their agricultural problems, we still would not fill the gap. There are about 250,000 agricultural scientists in the OECD countries at the present time. Sending every one of these overseas would not really fill the gap.

There are not enough training places in our own schools in order to train all these people that are needed. Moreover, the cost of these two methods--sending technicians overseas or bringing students here to train--is prohibitive.

It costs about $30,000 to send one U. S. agricultural technician overseas to work for one year. It costs about $6,000 to bring one foreign student over to the U.S. for training for one year. Compare this with the cost of training a student in Chile for a full four years--about $6,000.

So I think it is quite obvious that any programs that USDA and AID are going to devise to fill the less-developed countries' need for trained manpower in agriculture, must focus on training within the countries themselves.

I would also like to take a look at another dimension. I was in the Philippines for two years. The Philippines is a strange case in one respect, because it probably has more trained manpower than most less-developed countries.

A friend of mine, who had worked in agricultural planning there, estimated that the Philippines probably has more trained people in the rural areas to help farmers than any other less-developed country in the world. But take a look at what kind of impact, if any, they have had. Over the past 20 years there has been no increase in rice productivity per hectare in the Philippines. The increases they have had have been in total production, and the increases have come about because of the expansion of land. But they are about at the limit now.

Further increases will have to come through increased productivity on the lands that are already under cultivation. So far, all of these people who are out working in the area have had no impact on bringing these increases about.

I do not think this really contradicts what I said before, that there is a need for trained people in the less-developed countries. This means that it is not enough to just train people and send them out there, and simply increasing the numbers of people we train here and they train over there is not enough either.

These people have to have the actual skills that are needed to solve the problems that are there. We found in the area that I worked in the Philippines that the extension agents who were supposed to be helping rice farmers frequently knew much less about growing rice than the farmers that they worked with.

The problem in the Philippines, I think, is to increase the skills of the people who are already there. I think this is where the great benefit is going to come from in many areas--increasing the skills of the people that they already have working.

I think these people should be trained and get specific skills because they will have to be working on the real problems in a particular area, and their training has to be pertinent to these problems in order to have some impact on production.

We also found a number of people who were trained in rice production in areas where there was very little rice grown, where the major crop was coconuts. These people were not much use in helping to increase productivity in these areas.

These are the kinds of things that I think USDA and AID are going to have to consider when we start devising training programs and our approach to manpower planning.

Now, I will come to the problem of our present training programs and our present approach. I think they are based on this assumption: that by bringing people to the United States for training we will give them useful skills, and that when they get home these skills will be used.

I think we found that there are a number of problems with this assumption. A recent study by AID, an evaluation of participant training, brought out quite a number of these problems. Many of the skills that people learn in this country, agricultural skills, are not relevant when they get home. Also there is a problem of utilization when these people do get home. AID pointed out that the people who were most likely to use their skills in their own country were those who had contacts--continuing contacts--with the AID program in their home country.

I think one thing that we are going to have to start thinking about is that our training, any of our training efforts, cannot stop at our own borders. We are going to have to focus as much as possible on what goes on in the less-developed countries and we are going to have to carry our training programs over to the less-developed countries themselves.

There are several ways in which we can go about doing this. There are several areas now, I think, in which AID is active in building up local institutions, and giving these countries greater capabilities of training their own people. The many contracts that the universities in the United States have with agricultural universities overseas to build up their undergraduate schools is an example of this.

I am encouraged by what I see going on in Southeast Asia. The ministers of agriculture and the ministers of education in Southeast Asia recently met, and they agreed to make one of their universities, the University of the Philippines, the regional center for agricultural training. I think this will allow them to build up a great research and training capability at a much higher level than if each country had attempted to develop a graduate program on their own. I also think that training as many people as possible on the graduate level in agriculture in an area that is similar to the conditions in their own country will give them an education which will be much more relevant to their needs when they return home.

Another area that you will find USDA is thinking about moving into is in-country training. I think Mr. Harvey talked a little about some of these in-country training programs.

I guess basically this would be developing a series of courses which can be put on in the countries themselves. Perhaps, at the beginning, United States' technicians would help set up the programs and present some of the instruction, but eventually the people in the less-developed countries would put on the majority of this training themselves.

Hopefully, people in the less-developed countries have a lot of these capabilities right now. Over the past 10 years we have trained 25,000 foreign students in agriculture in the United States. One would hope that we could make much better use of these people and the training that they got here by using them in some of these in-country training programs.

I think these programs would have several advantages. Instructors and students can work together to adapt a course to the needs of their particular country. If the courses are held within the country and they are kept fairly short, agricultural supervisors as well as their technicians can be included. I think this is a good way to expose the supervisors to the same kind of ideas their employees are getting, and reduce some of the resistance to innovation. I think the AID study found that much of the resistance the people who had been trained in the United States ran into, was due to their supervisor's inability to understand what they were trying to introduce into the country. Supervisors who had also been trained in the United States were much more open to new ideas and to giving their employees encouragement.

So if this kind of training can go on within the less-developed countries themselves, and include the supervisors to some extent, this will tend to reduce their resistance.

In the Philippines, we set up a training program in the region where I worked. We found that the people who had been trained together, by the time the program was over, had already developed certain experience in working together, and talked the same technical language. Once they got out of this training program, they were in a much better situation to support each other in introducing innovations and new ideas within their institutions.

I ran into the problem that many people who were trained in the United States would do well here, but once they got back into their own country, unless they received continued support from a United States' technician or from somebody else within their agency, they soon reverted back to many of the ideas that they had before they received this training.

Training a group of people who are going to be working together, training them together, would allow them to develop these support relationships that they can continue in their work.

I think another major advantage of in-country training would be the cost. A USDA experimental program that went on in Turkey cost the United States $4,000 and trained 18 people. This is a lot less expensive than bringing them to the United States.

There is one more point I want to make. I think there is one other area of specialized training which should be explored. Mr. Waters discussed this to a certain extent. I think it is becoming more evident that government alone does not have enough resources to complete the development work in the less-developed countries. More and more, we are going to have to get private industry involved in development. A lot of trained manpower will be required to work in the fertilizer plants, the pesticide plants, and the machinery and food processing plants that are going to be going up in these less-developed countries. This is going to require skilled workers, particularly technicians and managers. From the beginning, the workers in these organizations will have to be local, and sooner or later, the technicians and a lot of management will have to be local as well.

Right now I think one of the restraints that keeps private enterprise from investing overseas is the lack of trained manpower. I think it would be worthwhile for USDA, AID, or other government agencies to explore ways that we might be helpful to some of these industries in developing training programs that they could use when they move in and make investments in some of these countries.

I think there would be some value here in training the less-skilled workers. We found in the Philippines that people are being trained, and yet there is no demand for their skills. But linking up a training program with an area in which there is a demand, where there are jobs, will make sure that the training gets used, and that there is a demand for these people and for their skills.

There is an experiment going on in the Philippines right now. Esso has just set up a fertilizer plant there. They have become involved in extension as well as distribution and are training extension agents. It is going to be interesting to compare the results of the Esso training with the results of the training offered by the Philippine Government. Thank you.

MR. NELSON: I think you will agree with me that Miss Taylor is a very knowledgable young lady, and she is certainly the best-looking member of this panel. And that is one of the most modest tributes I have paid you today.

Mr. Marvin Miracle was introduced to you earlier this morning. He is Professor of Agricultural Economics at the University of Wisconsin. He has a Ph.D. from Stanford. It is unnecessary to repeat his background again. It was pointed out the first time that he was quite an expert "in corn." I did not find that to be particularly so when he spoke. But we will give him a chance to speak again this afternoon.

MARVIN P. MIRACLE: I still am not going to talk about corn. What I would like to talk about, I suppose, is institution building. And particularly at this point I would like to argue that it is quite important that we keep institution building in perspective.

I would like to see more favorable institutions for economic development throughout underdeveloped countries. I think there is probably not a great deal of disagreement about the potential benefits, if you can get the right institutions established.

But particularly in the last session, I came away with the feeling that the cost of effectively getting the right kind of institutions, at the right place, at the right time, was being at least partly overlooked. And this is a matter of economics, really. There are noneconomic benefits of institutions. It is hard to submit them entirely to the economic calculus, but if we try a particular institution, land reform, cooperatives--4-H Clubs were mentioned earlier in the program--and it fails, the cost may be considerable, not only in terms of resources, the material costs, but also in terms of the reaction on the individual farmers and others who might have been involved.

I might talk a little bit about our experience in cooperatives in underdeveloped countries. In many parts of the undeveloped world, cooperatives have been largely unsuccessful, or there has been a very high cost. I know of a number of examples in Africa where they have just entirely failed, with a particularly difficult set of circumstances.

I think the difficulty is partly in bringing in a new institution that is in conflict with other institutions which are in many ways similar or competing. The type of problems that have been involved have been as simple as, for example, a lack of business experience, bookkeeping ability, and this sort of thing which manpower training can do a lot to solve.

And also difficult is the fact that there is the fact that there is the extended family system, which Burnie Merson was talking about earlier--problems where people coming from a communal situation in which there is a strong obligation to relatives and kinsmen have difficulties in performing in the best interest of the cooperative. There is essentially a conflict of interest between their obligations to relatives and obligations to cooperatives, with resulting problems of shortages in the treasury, and so on.

There is perhaps another problem--a dual standard of honesty. Funds that came from government sources are regarded quite differently than one's neighbors possessions, or some loan that one might have obtained from another individual.

There are also problems of social structure where, as was mentioned, cooperatives may be started with government assistance with the directors named by the government. This may run counter to the power structure in the village or in the area, and the people who are really in power then try to undermine the cooperative. There have been a number of these cases in several areas.

I really just want to say that we need, I think, a great deal more research on the kinds of settings in which other institutional forms have the best chance of success.

I was struck by Abe Weisblat's reference to visiting Latin America for the first time and finding it so vastly different from India. I went from Africa to India, and was greatly struck by the differences there. It seems to me that another dimension of the problem is that there is a lot yet to be learned about the differing nature of institution building in various parts of the undeveloped countries.

MR. NELSON: We have, more or less by coincidence, rather wide geographic backgrounds among the four people up here, which I had noticed. Mr. Merson has worked primarily in the Middle East and North Africa, Miss Taylor in the Far East, Mr. Miracle in Africa, and our final speaker is primarily a Latin American specialist.

Lewis Earl is chief of the Foreign Manpower Programs in the Office of Manpower Policy, Evaluation and Research of the U.S. Department of Labor. He is a graduate of Texas Tech, which is in his home state, and holds a law degree from Georgetown University. He has been with the Federal Government, in one way or another, mostly in the Labor Department and the Department of Commerce, since 1940, and has served as a program officer in the general field of manpower and economic development in Brazil, Argentina, and El Salvador. He was a naval officer during World War II. Our final speaker is Lewis Earl.

LEWIS H. EARL, Department of Labor: Thank you, Bud.

I note that you saved for last, but not least, an old warrior in the War on Hunger, one who has been fighting it for a long time, and obviously has not been continually winning.

About a month ago, or more, when we sat down to plan this Symposium, I was very skeptical that, with all the varied disciplines and the varied interests of all the participating experts, we would really get anything out of such a meeting. And I must say that I have been very happily surprised here during the three days. I think there has been a lot of communication that was needed. Many important thoughts were expressed. I think it is time now that we began to think about what has really come out of this meeting.

I think that the title of this symposium implies a question: Is manpower needed to win this War on Hunger? And I am not sure that we can answer that in the affirmative. I hope you will think about that a bit.

We have discussed a great deal about what kind of manpower is needed, what skills are needed, where are they needed, how much manpower is needed, and where will we get it.

During the course of these three days I think we have encountered a number of dilemmas, a number of blind alleys, and a number of areas in which we pointed out it would be difficult to follow. Even the very subject that brings this whole meeting together presents a dilemma which was so well outlined by Herb Waters the other day, the dilemma of the food/population problem, which we are continually returning to.

There have been a number of other dilemmas, I think, pointed out here. Just in this session we have been looking again at the tremendous cost it would take to train the great number of agricultural specialists and other specialists that would be needed, and I realized that we do not have the resources to do all of the training that some of us think is needed.

I was impressed the other morning when our psychologists and communicators were talking about the problem of reaching some of the foreign people. Their discussions indicated that it is almost impossible to reach some of these people. And this represents a dilemma in ever reaching our objective of overcoming the problem of hunger.

Yet in this meeting there have been some notes of optimism, ways in which these problems might be overcome. Practically every one of our technical experts has in mind some way that a greater amount of food could be produced to overcome the problems that we foresee in the future.

But I think in summing up this meeting, we might well go back to one of the very early sessions, the paper that Gene Martinson presented, which I thought had a lot of things that we ought to think about in terms of manpower planning--things that he called "new directions in manpower planning." He pointed out, I would emphasize particularly, some of the errors that we have been making. I would tend to agree with him that in our manpower planning we have tended to overlook and not give sufficient attention to agriculture, which is the area in which a vast amount of the manpower exists in the underdeveloped parts of the world. Also, that too much emphasis has been given to long-range educational plans.

There has been overattention to long-range future needs of manpower without looking closer at the short-term current problems, and attempting to overcome those. There tends to be frequently an overestimation of high-level manpower requirements and the need for higher education in less-developed countries. In his paper, I think Mr. Martinson set the stage for getting away from the aggregative approach, and to disaggregate and get down to some of the immediate local types of problems.

I was particularly happy to hear the discussion of the Mass Fertilizer Project in El Salvador, partly because from 1959 to 1961 I was in the ICA, predecessor of AID, and I was program officer there. With the economic officers in the embassy, we discussed the possibility of this thing being carried out, and we gave it up. We knew that with the continual transfer of people in State and AID, you would never get anyone in there long enough to really provide the leadership and the continuity.

I was most pleased to notice that Ben Birdsoff had gone back there after 10 years and provided the leadership to carry on this experiment, which is most useful.

But I think that some of our most useful discussions have been those which have asked what our objectives really are. What are our objectives in rural agricultural areas all around the world? How do we rationalize the implicit conflict between the social welfare and the hard, economic approach that probably is needed to produce more food for a growing population?

In some of these discussions on underemployment in the agricultural areas, and in the discussions on income and productivity, I was a bit disappointed that someone did not go ahead and say that if we are going to get more production out of some of the less-developed countries, we are going to have to recall how we raised farm production in this country--we took the people off the land.

Now I go back and ask, don't we have too much manpower in agriculture? The history of our country in the last several years indicates that we do. I am convinced, after hearing all of these dicussions, that over the long run, if we are going to get more production out of some of the less-developed areas, it is going to be a matter of getting the people off the land, and a matter of providing more capital incentive to get the production. When you take a lot of those people off, then the ratio of the agricultural graduates to the number of farmers is going to be higher.

If we talk about this, it leads us into another problem, another dilemma: What are you going to do with them? What are you going to do with all the unskilled, the "unwashed," that are still living in peasant subsistence agriculture? This, I think, is our real challenge.

I do not have the answer. But I do think that a part of the solution to the problems of this dilemma will be found in what we have come to know in the more developed parts of the world as an Active Manpower Policy. A policy of full productivity, remunerative, freely chosen employment for every man who wants to work, is willing and able to work. And this takes a lot of imagination. It takes a lot of manpower planning. And it takes planning not only at the national level, but, as was pointed out in several of these discussions, coordinated planning at the local levels to create jobs and to find places to place the people in full productive employment.

MR. NELSON: Thank you, Lew.

MR. MERSON: I want to revert back to my first day. I gave sort of a welcome. Now I notice on the agenda there is a summary by Edgar C. McVoy. I do not know if there is anybody who is going to introduce him, so I will start now.

I want to say on behalf of AID that we want to thank Bud Nelson here, Ed Rawson, and Mr. Caton, all from AID for the very hard work and strong support that they gave to the symposium, and in the International Manpower Institute, our thanks to Glenn Halm. I watched him over the last few weeks. The first time anything really got started was just six weeks ago. It has been a herculean task, and I certainly extend my thanks to Glenn, and Ray Brown for the administrative work, and to Mrs. Coates, who has been spearheading the clerical staff. As usual, Ed McVoy has been an outstanding planner and executive of the Manpower Institute, so thanks to Ed McVoy, too.

I said all this because it is really merited, and it has to be said, because a Symposium like this takes a lot of work, and these are some of the persons that are responsible for it.

MR. NELSON: I do not want to turn this meeting back to Mr. McVoy for his conclusion before giving an opportunity to anyone to speak who has something that he wants to say but did not do so in the last three days. This is your last opportunity.

KARL A. LUNDBERG, American Institute for Free Labor Development: I would like to address this question to Mr. Merson, and perhaps to Mr. Earl also.

It certainly seems to me that we need some research on this transition from hand labor to the machine technology. I think we badly need research on what is happening, what kind of techniques have been discovered that are successful. It is not just a matter of training people to run the machines, but primarily of training them how to work together.

MR. NELSON: Would either of you gentlemen care to comment on that?

MR. MIRACLE: I might add a brief comment.

It seems to me that this is certainly an area for good research, and a lot more research. This is where productivity could be greatly increased. People are eager for this kind of training in many parts of Africa--I know they would dearly love to know how to be a mechanic, and it could certainly save a lot of foreign exchange in terms of automobiles and handmills and other things. And handmills are one kind of mechanization that has been widely adopted in Africa, and very readily adopted. A tremendous amount of labor has been saved in grinding grain with a simple handmill that costs 40 or 50 or more dollars, as opposed to grinding with a mortar and pestle or a machete of the Mexican variety.

I am in perfect agreement with you; there is a need for research.

MR. NELSON: Lew Earl, the research unit of Manpower Administration falls in your shop. What would you add?

MR. EARL: It does not fall in my shop, but I get into it now and then. I think there is a definite need for much more research, particularly in this training area. How do people acquire skills? What is the best means to train them? And what have been the experiences that have been had in places around the world?

The difficulty with some of this is that when you get to doing work in some of the less-developed areas of the world, they tell you, "We don't want any more research; let's get something done." And that is the thing I think we have to overcome many times when we start devising research projects.

However, there is some research, I know, going on in various and sundry places. And incidentally, I was talking about a month ago to a professor who had a research grant from the National Institute of Mental Health who is studying something in Yugoslavia on the movement of workers out of peasant agriculture into the factories and some of the psychological effect that this was having on these people.

I think there is a lot more to be done in this area. But it gets to be a pretty hard problem sometimes to justify this to your bosses from whom you have to get funds to do it. When I say "bosses," I am speaking of our Congress.

MR. NELSON: Mr. McVoy, I promised to complete this meeting and turn it back for a final statement, and I will now do so.

Friday, May 5, 1967
SUMMARY

MR. MCVOY: That was an all-star panel, and I think all of ours have been during this symposium. My remarks are not going to be a summary. I will ask the authorization of this body to extend my remarks for the record. And that will become a summary.

There are three main questions that I think we have been asking. First, what is the nature of the War on Hunger, that is, the dilemma between food supply and population?

Second, what is needed to solve the food problem? Noting that in this symposium we have neglected intensive treatment of the population side, not thereby minimizing its crucial importance.

A subquestion: What are the constraints on these proposed solutions?

And the third question which we hope is the essence of the symposium--what are the distinct manpower and human elements in the War on Hunger?

The nature of the dilemma is simply that population is increasing faster than food And somehow we have to bring them into balance. Even an overall balance may not solve the problem, because there will still be people fat somewhere and lean elsewhere.

It has been recognized pretty generally since 1960, that food production in the advanced nations is not going to solve the problem. We seem to be in another age of Malthus with even more frightening dimensions than it had at the time.

There are a couple of subissues to this problem. First, how do we get more food produced? And second, how do we get it consumed by the people who need it in the right quantity and in the appropriate quality? The latter is equally important. We have heard about the effects of malnutrition on both physical and mental conditions.

People need incomes. Even if you have plenty of food, if people cannot afford it, they can still starve or be malnourished.

The birth rate and death rate-- we are trying to bring closer together. While the death rate is going down, we want the birth rate to go down faster. But while the natural human tendencies work toward reducing the death rate further, they work against reducing the birth rate; they work toward increasing it. It makes it a very difficult thing to tackle.

How can the food problem be solved? I will mention the things other than manpower, just to list them, and then we will go into a brief analysis of what was brought up about the manpower side.

More land. If you have it, put it into production. If you do not have more land, you make the existing land more productive by a greater input of capital, labor, and maybe some other factor like technology and entrepreneurship.

Now, these inputs, particularly labor, have a quantity and a quality--you can have more labor, or you can improve the quality of labor. When you get to capital input, it becomes very difficult to divide labor and capital in a realistic way. But it has been mentioned that improved fertilizer and insecticide can increase production and machinery can add power to labor.

With respect to food, you have a need but effective demand is not necessarily as much as the need. And there must be an infrastructure, a market, supporting services by the government, private resources, credit, research, knowledge.

We might be fairly close to having enough know-how technically, enough technology to tackle the problem pretty well, except that much of this technology has not been well adapted to the conditions of developing countries. And that seems to be the main research challenge.

I might mention here other sources of food, fisheries, and some of the synthetic sources that we heard about. The latter do not seem to hold the promise of solving the problem in the short run.

The constraints are lack of land, lack of capital, traditions, emotionally-charged resistance to change, fear of insecurity and risk taking, low level of subsistence, and the political element. Also social goals have been mentioned, particularly in the form of rural welfare.

I come now to the third big question: What are the distinct manpower and human factors in the War on Hunger, and particularly in food production, distribution, and consumption?

First, what can we do about or with food producers to get them to produce more? How do we train and motivate food producers to increase their production?

We went into some definitions--and two scholars offered some categories. One distinguished between the family farmer, the unpaid family worker, the landless laborer, and the farm operator or manager. He said we should look at labor as a distinct factor in agriculture as we do in industry.

Another scholar gave us a detailed breakdown involving subsistence and commercial farming categories, and variations of those that he felt were significant in tailoring programs.

What do all producers need? They need energy, mental capacity; they need knowledge and skill; they need motivation, incentive to change. Finally, they need the ability and willingness to communicate with and cooperate with others.

I raise a subquestion here: What is the best approach to influencing rural people, and getting the necessary physical and social environment for more food production?

First there is the change agent, the extension worker, the village-level worker, whoever is the person who is the instrument of contact for change. The change agent approach has been described as a rather successful operation at Comilla in Pakistan and in El Salvador, but not very impressive in Peshawar, also in Pakistan, and the Helmand Valley in Afghanistan, for different reasons, I believe. In the Helmand Valley, there were not enough change agents. At Peshawar, their attitudes were such that they did not get out among the people.

Second, is the group approach, or the organization approach. One may start with the greater family and work up: the community, the cooperative, the labor organization, the youth organization, the religious organization, the private enterprise--by "working up" I did not mean any sort of judgment there. And there must be leadership in which people have confidence.

Third, we get to the mass media approach, which was shown as not very effective if used alone. But then, you can never have enough change agents--they cost too much, and it takes too long to train them.

The combination of the change agent, mass media, and a forum can give you a very effective approach to imparting knowledge as the first step in changing attitudes and practices.

I will have to outline the rest to meet my time schedule--fourth, the demonstration method; fifth--the schools--especially if you get children early enough; sixth--training employers--especially trying to get them to understand that workers are people and they have to have some recognition, dignity, and incentive.

The last approach I will call general economic incentive: Modernize agriculture and relieve it partially or entirely of the rural social welfare burden. This will cause a reduction of labor supply and will provide an incentive to increase the productivity of the remaining labor. Look at each individual, and determine how he can improve his own productivity and income.

So much for the food producer. I am afraid in this symposium we did not spend much time on the food processors, and so on. But again, that does not indicate their lack of crucial importance in this process.

The training of middle- and upper-level manpower I will go over very lightly. Train only the top ones in advanced countries, and train the rest either in their own countries or in regional centers.

Policies, planning, and institutions: Appropriate priority needs to be given to agriculture in economic and manpower planning.

I would like to see classifying farmers in occupational codes as unskilled labor stopped. I think that would be a long step forward.

And in the economic development plan, why not start with the human element and work from there?

I would like to read the last short paragraph of a paper that we prepared in the beginning about this Symposium.

> The results of this symposium will not and should not be an orderly set of conclusions. Rather, it will be an effort to focus attention on the human element in the food and nutrition side of the War on Hunger and to identify the specific problems associated with training and motivating people to produce, distribute, and consume in a way to enhance the development both of the national economies and of the people who inhabit the nations of the world.

Appendix A

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